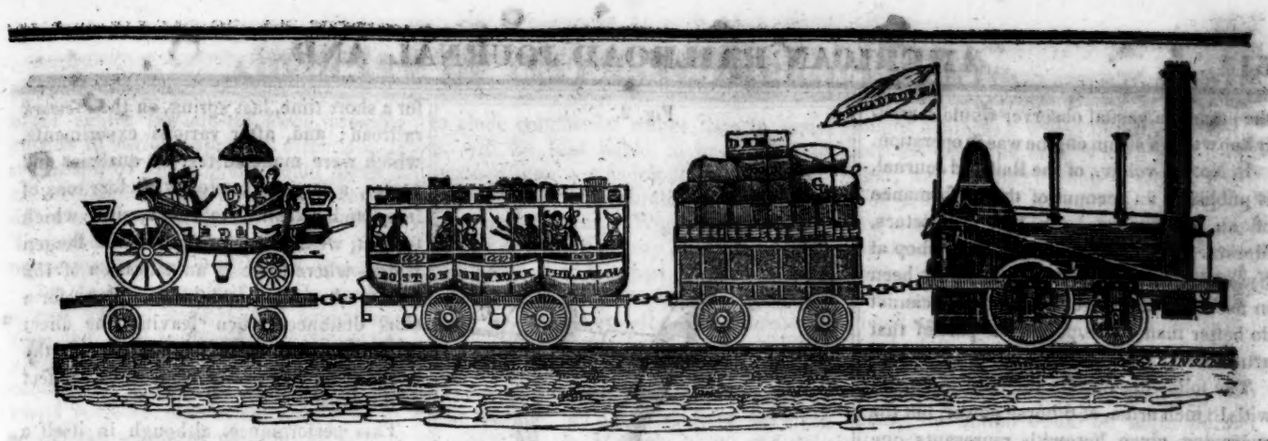

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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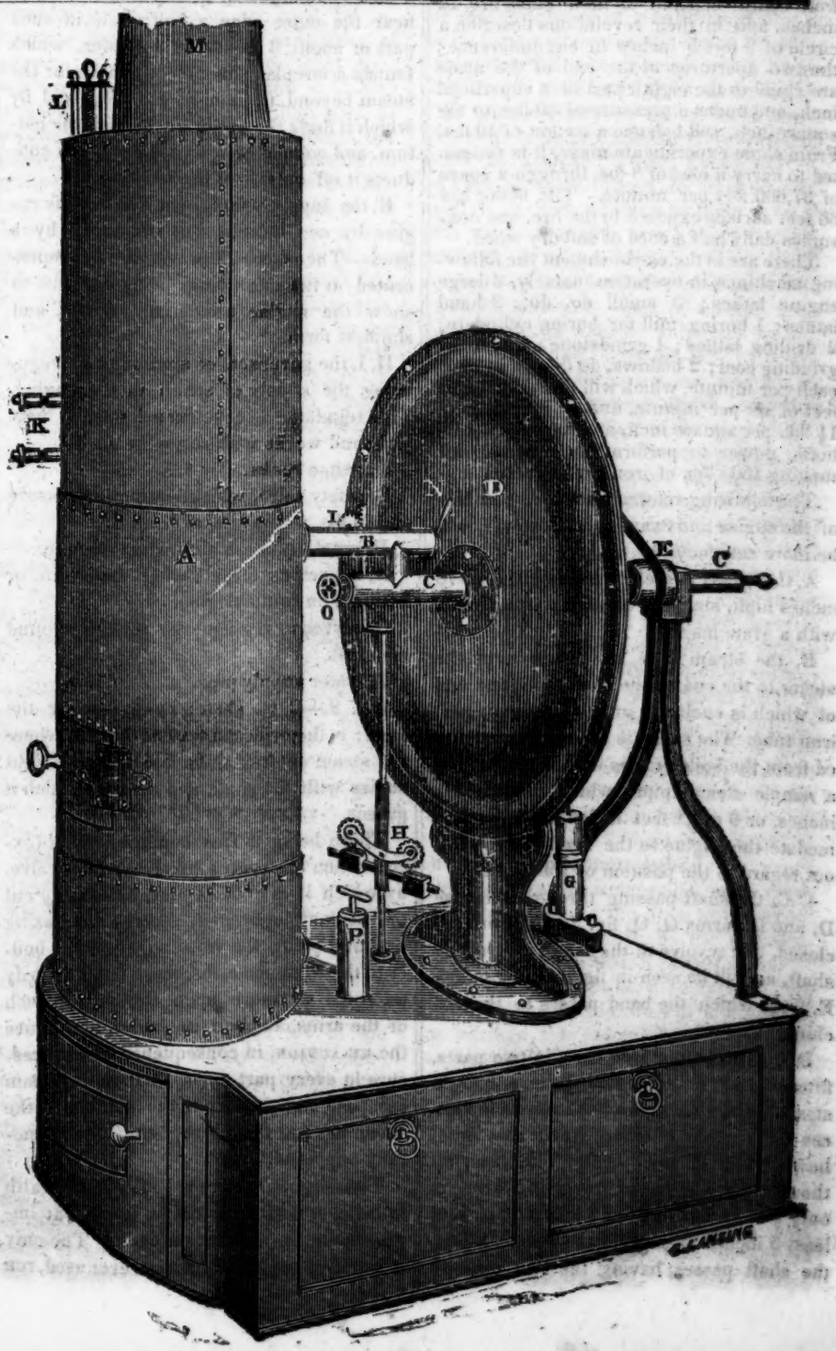
AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 22, 1835.

AVERY'S ROTARY ENGINE.—After a long and vexatious, and yet unavoidable delay, we are enabled to give a drawing of Avery's Rotary Engine, of which we have frequently spoken before. The annexed drawing is taken from a *two*-horse power engine, built for this office, to drive a printing machine, which prints both sides of the sheet before it leaves the press. This engine, as it will be seen, together with the boiler, force pump, and governor, and, in short, *every thing necessary* for communicating motion to them and to the machinery to be operated, occupies a very small space, it being only 4 feet 8, by 2 feet 10 inches. The boiler is 17 inches in diameter, and 78 inches high; the furnace for anthracite coal occupying about one fifth part of it.



The principal advantages of this engine, as we conceive, consists in its compactness, the ease with which it is managed by any person who can tend the *fire*, the trifling cost of fuel, as well as the small outlay for the engine. The most important advantage, however, for many purposes, and especially for driving *printing machines*, will be found in its perfectly uniform motion. It is indeed so perfect, and the velocity so great, being about *five thousand* revolutions of the arm, shaft, and of course pulley on which the band runs, per minute, that but for other than the ordinary machinery attached to

the engine, a casual observer would scarcely know that a steam engine was in operation.

In No. 12, vol. iv., of the Railroad Journal, is published an account of the performance of an engine used by the proprietors, Messrs. E. Lynds & Son, in their shop at Syracuse, New-York, which has now been in use more than two years, and we cannot do better than to re-publish a part of that article.

The following extract refers to an engine with 18 inch arms, of 6 horse power, but the engraving given herewith represents one with 12 inch arms, or about 2 horse power. There is one now in operation in this city for sawing mahogany, with 2½ feet arms, which will do the work of a 12 or 15 horse power engine, and performs to the entire satisfaction of those who use it.

"The engine, that is, the shaft and arms, weigh, as I learn, only 15 lbs.; the arms, from centre of shaft to their ends, are 18 inches, and in their revolutions describe a circle of 9 feet 5 inches in circumference; the two apertures at the end of the arms are equal to the eighth part of a superficial inch, and under a pressure of 80 lbs. to the square inch, will balance a weight of 10 lbs. From some experiments made, it is estimated to carry a load of 8 lbs. through a space of 37,666 feet per minute. The boiler has 66 feet surface exposed to the fire, and consumes daily half a cord of soft dry wood.

There are in the establishment the following machines in operation, namely, 2 large engine lathes; 2 small do. do.; 2 hand lathes; 1 boring mill for boring cylinders; 2 drilling lathes; 1 grindstone; 1 mill for grinding coal; 2 bellows, 40 double strokes each per minute, which will force 580 cubic feet of air per minute, under a pressure of 1½ lbs. per square inch, and requires 4 to 5 horse power to perform its operation of melting 1500 lbs. of iron per hour."

The following references will give an idea of the engine; to examine it, however, will be more satisfactory.

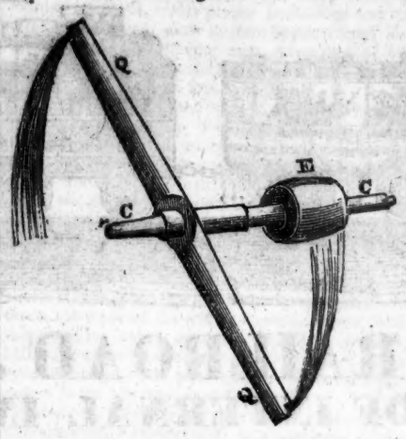
A, the boiler, 17 inches in diameter, and 78 inches high, standing on a cast iron frame, with a grate inside.

B, the steam pipe, which conducts the steam to the end of the shaft C C, one end of which is enclosed in a superfluous cast iron tube. The steam is ordinarily conducted from the boiler to the end of the shaft in a simple steam pipe, which may be six inches, or 6 or 12 feet in length, to accommodate the engine to the machinery, without regard to the position of the boiler.

C C, the shaft passing through the case D, and the arms Q, Q, fig. 2, which are enclosed, and revolve in the case D. On this shaft, as will be seen in fig. 2, is the pulley E, from which the band passes to the machinery.

D, a circular cast iron case, in two parts, fitted and put together with bolts, and made steam tight. This case has in some instances been made of sheet iron; cast iron, however, is deemed best. The case, although the engine, or revolving arm, is only ¼ of an inch in the thickest part, is at least 5 inches through in the centre, where the shaft passes, having the two concave

Fig. 2.



surfaces turned together; and it is considerably larger, or of greater diameter, than the length of the arms, that there may be space, which is enlarged by giving to the casting, near the outer edge, a half circle in each part of about 3 inches in diameter, which founds a circular channel or groove for the steam beyond the end of the arm, and by which it finds the outlet F, through the bottom, and connected with a pipe which conducts it off outside of the building.

G, the supply pump, operated in this engine by cog wheels, but ordinarily by a band. The wheels, however, are not represented in the engraving, being desirous to show the engine as in general use, and simplest form.

H, I, the governor, or apparatus for regulating the supply of steam to the engine. This regulator is constructed upon a new plan, and works with cog wheels.

K, gauge cocks.

L, safety valve, which is set at a pressure of 100 lbs. to the square inch.

M, smoke pipe—a six inch stove pipe.

N, apparatus for stopping the steam, or letting it on to the engine.

O, serves to regulate the packing around the shaft.

P, water supply pipe.

Fig. 2.—C C, shaft; E, pulley for the band; r, the orifice in the end of shaft where the steam enters; Q Q, the arms at right angles with the shaft, and through which it passes.

There being a free communication (except when obstructed by the throttle valve, by which it may be *in part, or entirely* cut off, as may be desired, thereby increasing or diminishing the velocity,) from the boiler to the shaft and arms, there is necessarily an equal pressure upon the square inch of the arms, as upon the boiler, and hence the RE-ACTION, in consequence of the pressure in every part, except where the steam escapes, and not from the action of the steam against the atmosphere, as is generally supposed.

This engine, we are yet fully in the faith to believe, will be found an important improvement for *railroad purposes*. The only locomotive engine of the kind ever used, run for a short time, last spring, on the *Newark* railroad; and, after various experiments, which were made to test its qualities and power, a car was loaded with four tons of iron, and attached to the engine, which took it, with great ease, over the Bergen Ridge, where there is an elevation of 152 feet to the mile—and in one place, for a *short* distance, when leaving the direct track for that built temporarily on the bank, *of six feet in one hundred*, or 312 feet to the mile.

This performance, although in itself a small affair, is, knowing, as we do, the ingenuity and perseverance of the inventor, *William Avery*, to us evidence that another engine, built and improved upon by the little experience already had, will surmount elevations of 150 to 200 *feet per mile, with loads of eight to twelve tons*, and that the same engine will, on a level, or gently undulating road, perform 35 to 50 miles per hour.

Mr. Avery is now engaged upon a locomotive engine, a model of which we have examined, which will, we doubt not, perform all we have here predicted; and if so, what can prevent them from being generally adopted on all our Railroads?

If we were at liberty, we should attempt to give a drawing and description of this locomotive; but, as it is his desire to complete it first, we shall defer for the present further allusion to it, or until we have permission to give a definite account of it.

[From the London Mechanics' Magazine.]

ADAMS' CIRCULAR SPRING WHEELS.

"Break all the spokes, * * * * *
And bowl the round nave down."

It has long been a desideratum amongst mechanicians, to accomplish the task of constructing a wheel for carriages intended to convey persons and goods over rough roads, which, while it should possess sufficient strength fitly disposed in its several parts to resist breakage, unsteadiness, or any permanent alteration of form, from any of the ordinary shocks or violence to which it might be subjected, should yet possess the property of elasticity to such a degree, as to intercept and materially diminish the concussion caused by the periphery rolling over obstacles during its revolution; and thus either prevent the concussion from extending its effects to the axis round which the wheel might revolve, or to lessen it so much that the effects might be comparatively innocuous. It must, of course, be necessary that the elastic power should be placed between the periphery and the axis, without in any way diminishing the roundness or altering the circular form of the periphery—which circumstance would tend materially to increase the rolling friction of the wheel: wherefore the only mode in which elasticity can be made available, must be by enabling the axis to depart sufficiently from the exact centre of the periphery where concussion takes place—to which

exact centre the elastic force, pressing equally in various opposite directions in the plane of the wheel, should have a constant tendency to restore it when the effect of the concussion might cease. The advantages attendant upon a wheel so constructed are several and obvious.

1st, In ordinary sized wheels, used for a cart without springs, the concussion from the road is driven in a direct line along the spokes of the axis; and this concussion, constantly kept up as the wheel revolves, serves materially to increase the weight of draught, by forcing out the oil or grease, and bringing the rubbing surfaces of the axis and axis-box in close contact, to the increase of friction. This disadvantage would be removed entirely, or very materially lessened, by the use of an elastic wheel.

2d, In carriages with rigid wheels, to which the axis is attached by means of a horizontal spring bearing on the axis, the concussion is diminished, by its uniform bearing upwards; still it is but slightly, inasmuch as the momentum of the concussion passes directly along the rigid spokes to the axis; and, moreover, the relief which the spring affords is only in a vertical direction; in which direction the greatest amount of the momentum of concussion does not pass, but in a direction more inclining towards the line of progress as the wheel revolves. This disadvantage would be materially lessened by an efficient elastic wheel, inasmuch as the elasticity being in a circle all round the axis, would avail both against vertical and horizontal obstacles or inequalities.

3d, It is well known that the force requisite to move a carriage at first starting is greater than that required to keep motion up. The reason of this is, that momentum is required in proportion to the rapidity of the motion. Wherefore, every obstacle or inequality which the wheel encounters as it revolves, has a tendency to check the momentum, and render the draught power necessary to move the carriage onwards nearer in amount to that which was originally required to move it from a state of rest; because the concussion in the line of progress is nearly in direct opposition to the momentum, and serves to neutralize it. An efficient elastic wheel would be found to receive the concussion on its periphery, but as it would not carry it, or would carry it with a diminished force, to the axis, the momentum of the superincumbent framework, to which the draught power is attached, would scarcely be acted on by it.

4th, The wheels of carriages are subject to considerable concussion in a lateral direction, lengthwise of the axis. A rigid wheel, under such concussion, transmits the concussion almost unbroken to the carriage, to the annoyance of the passengers, and with a tendency to derange the framework. But an efficient elastic wheel would possess a small portion of lateral elasticity, sufficient to diminish the violence of the concussion, and yield greater ease of motion.

5th, An elastic wheel, by its tendency to elude concussion rather than to resist it, will be less liable to be broken or strained than one which is rigid, and consequently its total durability is likely to be much greater. Wooden wheels, by reason of their property of elasticity, are less liable to break than those of iron.

Wheels are to a carriage what legs are to a human being—the instruments of locomotion. A man who loses an elastic leg, of bone, muscle, and ligaments, may have a wooden one to replace it; but he will find that the act of walking with the wooden one is a much ruder and less perfect process than with the one of bone and muscle; concussion, and the labor of surmounting or avoiding obstacles, will render the man's progress much slower. And it seems clear, that the property of elasticity in a wheel gives it a similar advantage over a rigid one that the natural leg does over the artificial one, though to a less extent; inasmuch as the mechanical contrivance of art must be inferior to the more perfect processes of nature. Ships, which are of rigid construction, are found to make a slower progress through the water than such as are slightly flexible; and in row-boats, the quality of flexibility is indispensable to swiftness: the reason is, that the flexible boat, as it advances, adapts itself, by its sinuosity, to the slight movements and currents of the water, which it eludes instead of resisting. The movement of a fish through the water is an illustration of the same principle; and, by a parity of reasoning, a carriage with elastic wheels avoids, by its yielding properties, many obstacles over which rigid wheels would require to be impelled by a greater exertion of power.

The general conviction of the advantages to be obtained by using elastic wheels has led to many attempts at their construction, but hitherto without any efficient result. One mode which was attempted was by arranging a number of pointed double elliptic steel springs in radiating lines from a nave to a periphery. To guard against the lateral action or leverage, these springs were doubled in number, and arranged at a lateral angle with the length of the nave each way. Even supposing such a wheel to be efficient, the expense of its manufacture would have precluded any extensive use of it; but the action was too imperfect, to allow much use without destruction of its parts. The elasticity of the springs could only be brought into action in the direction of the length of the ellipses, either by extension or compression; consequently the action could only be in a line diametrically across the wheel in one direction at a time: thus but few of the springs would be in action at one time, and that in a most imperfect mode, viz., in the length of a very long and narrow ellipse. The principle of an efficient spring wheel should be, that the elasticity should be alike at all parts of the circumference, and that no one part should act without the whole—that every spring should sympathise equally with the rest, from whatever direction a concussion might come. A wheel like that just described could not comply with this condition, and therefore such a wheel could not be durable. Another mode of forming a spring wheel was by making steel blades or ribbands in a sinuous or undulating curve, and forming them in radiating lines from a nave to a periphery, doubling them in the same manner as described in the elliptic spring wheel, to resist the lateral action or leverage. Supposing this wheel to be true and well made, the action would be more perfect than the former one; but the making of such springs all to stand their work equally well, and the needful accuracy of fixing them, would involve an expense too great for any extensive use; and after all, the action would be of that kind very likely to break the springs with a violent concussion. A third plan which has been proposed, but, we believe, never put in practice, is a small wheel placed within the circumference of a solid rigid ring of much larger diameter, the space between being supplied with several small hoops of ribband steel with open ends, put in with compression, so as to leave them free to enlarge or diminish their diameter when in action. These hoops were to be kept in their places by flanged segmental cavities adapted to their size in both wheel and ring, being otherwise unconfined by any fastening. The disadvantages of this form of wheel are many. First, its extreme want of elastic firmness; next, its want of universal action, being calculated only to act by compression on the springs below, and not by extension of the springs above. A great defect would be, that while the weight were pressing on the lower springs, the elastic action of the upper springs would be directed, not to alleviate, but to increase the weight. In action, this wheel would be impracticable; for stones and dirt would lodge in the centres with the springs, clog their action, and break them. But one useful thing they contain, viz., the germ of the only sort of spring which can be effectively applied to spring-wheels—the circle. The wheel itself is a circle continually revolving, and springs intended to have an equal action in that wheel, whatever side be uppermost, must be circles likewise. No other form can be of universal action, in the place of the wheel; no other form will yield extensibility and compressibility in every direction in rapid succession, each tending alike to restore the nave to the exact centre of the periphery, as the momentary action of concussion passes away.

Mr. William Adams, a partner in the firm of Hobson and Co., of Long-acre, has marked this essential principle, and has had the perseverance to work it out in detail, so as to lay it before the public in a practicable form. The leading features of his invention are four hoops of broad steel plate, properly tempered, the ends of the hoops being overlapped and rivetted together, so that each hoop may be solid, by which means it will resist and yield equally, both by extension and compression. These hoops

are affixed firmly at equal distances in the interior of a rigid circular rim, which forms the periphery of the wheel. This circular rim is made rigid by its peculiar mode of construction. An inner iron, or steel tire, of less substance than the outer one, is surrounded by a circle of wooden felloes, accurately fitted to the inner tire, and also with their ends accurately fitted to each other like a barrel arch, the lines of the joints meeting in the centre of the circle. Around this circle of felloes, so fitted, the outer tire is shrunk on hot, as usual, and all three thicknesses are rivetted together. In calling this a rigid rim, we do not mean that it is rigid like an iron casting, (for if it were so, it would not stand its work, but be liable to break, as cast iron wheels do;) but that, while it possesses a slight portion of elasticity sufficient to prevent breakage, it is also sufficiently strong to prevent any permanent alteration of its form by any ordinary concussion to which it may be subjected. To this rim the four hoop springs are firmly bolted, but do not in any material manner contribute to strengthen it. The springs serve as elastic legs; the rim serves as a foot to guide the steps they make in revolving. Wheelwrights call the act of putting a tire on a wheel, "shoeing it."

The nave of this wheel is made of iron flange plates, fitted to the axis-box, and reinforced by wood blockings. The flange plates are made in the form of a Maltese cross, and to the arms of this cross the hoop springs are firmly fixed, each with four clip bolts and nuts, without making holes in the spring; and this mode is found to ensure sufficient lateral strength to resist the central leverage of the wheel. The springs are tapered in width towards the circumference, in order to give the greatest elasticity towards the point of concussion. The axis-box is so contrived that it will carry a very large magazine of oil in actual contact with the axis, and the wheel is therefore likely to travel considerably farther without requiring fresh oil than any other kind, more especially as the elastic action removes the extra friction arising from concussion. Most oil axes are fed with oil by a capillary or pumping action. This action is liable to be disturbed from many causes, and if disturbed, the wheel will become fast on the axis by heating. But an axis in actual contact with the oil cannot be liable to these accidents.

One of the first considerations which struck us was, that a wheel with so much metal in it must necessarily be very heavy; but this proves not to be the fact. The peculiar action and combination of the springs being such that all mutually assist and are dependent on each other, the thickness of the plates is necessarily so much reduced below the ordinary standard of spring plates, that great lightness is combined with great strength. Thus a pair of these spring wheels are found to be just so much heavier than ordinary wooden ones as the weight of the inner tire amounts to. But as the axes used in ordinary rigid wheels are made much

Fig. 1.

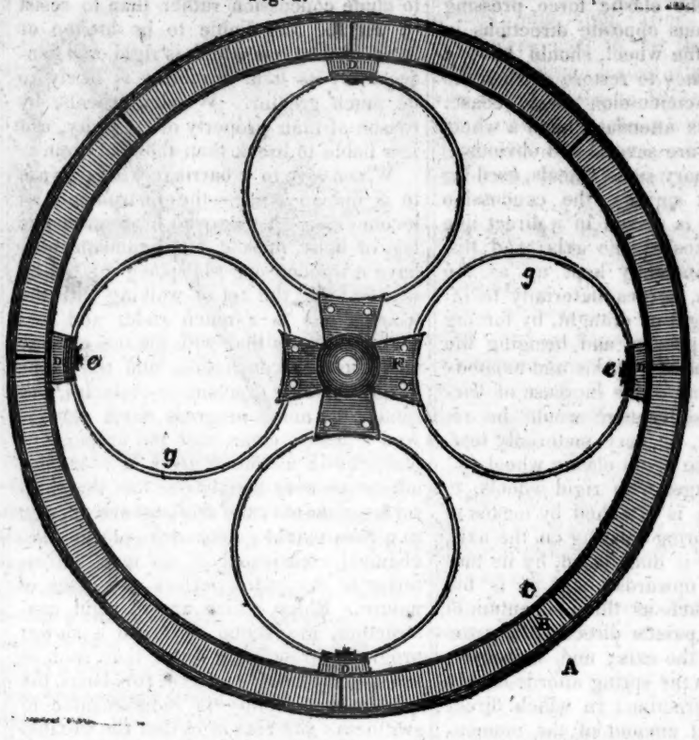


Fig. 2.

heavier than is needful for the weight they carry, in order to resist extraordinary concussion, so the axis of the spring wheels, not being subject to the same amount of concussion, may be reduced in weight, in order partly to compensate for the tire; and the surplus weight being thus placed at the circumference of the wheel, instead of on the axis-bearing, the friction will be reduced: and, in addition to this, the freedom from concussion, consequent on the use of the elastic wheel, will enable a saving to be made in the weight and number of the carriage-body springs; and thus a farther amount of weight, and consequently of friction, will be removed from the axis-bearing. In the construction of a wheel-carriage, the weight, as well as the strength of the wheels, should always bear a certain proportion to the superincumbent weight, or the centre of gravity may be too high, a disadvantage nearly as great in a carriage as in a ship. A wheel may be too light as well as too heavy, and the former defect is the greatest. The former is a defect of principle, and is dangerous: the latter can only make a slight difference in the draught by additional weight, and not by additional friction on the axis-bearing; and, at a considerable speed, the weight of the heavy wheel acts with momentum like a fly-wheel.

Mr. Adams' elastic wheel is light and elegant in its appearance, and apparently well adapted for pleasure carriages on common roads; but there is a still more extensive purpose for it to serve—we allude to the railroads, whose increasing number and probable universality render economy in the mode of transport a most important object. It appears, from Mr. Wood's statements, that the difference of wear and tear between carriages with springs and carriages without, on railroads, is as one-quarter to one-half. The springs used in railroad carriages are very short, and have little play, and that only in a vertical line, which is not the line of concussion. At rapid speed, the necessity for elasticity increases in compound progression. The speed used on railroads would tear a carriage to pieces on a common road. A small pebble, or a trifling inequality in the joint of a rail, at a high speed, gives a violent shock, and the momentum of each succeeding wheel, in a long train of carriages, like repeated rapid blows of a hammer, at each action increases the weakness of a loose rail, and ultimately breaks it, or renders it useless. As the elasticity of the spring-wheel acts in a direct line of concussion, both rails and carriages would be saved from it, and the total amount of friction considerably diminished. In the ordinary rigid wheels used on railroads there is occasionally a tendency, when not running in an exactly straight line, for the side of the flange which guides them to mount the rail, and thus overturn the carriage. It seems to us that the lateral elasticity of Mr. Adams' wheel would have a tendency to prevent this kind of accident; for the flange not revolving in a rigid plane, would slip downwards from the rail, as fast as a grinding contact might give it a tendency to mount, and the lateral elastic action would then tend to restore the track of the wheels to the proper position.

An elastic wheel possesses another advantage over a rigid one, in case of the defective construction incident to all wheels, viz., the absence of roundness, i. e. eccentricity of orbit. A rigid wheel

of this form must necessarily move with much friction; but the elasticity of a spring-wheel would tend to correct this defect, by yielding where there was the necessity during its revolution.

For ordinary weights, the springs are made in single plates, by which means they may be effectually preserved from rust; but for heavy carriages and engines, the inventor proposes to multiply the number of plates in the same mode as other carriage springs.

Fig. 1 is a side elevation of the wheel. Fig. 2 is the cross section. A is the outer tire; B, the felloes; C, the inner tire; D, blocks to bend the springs on the rim; *e*, the clips to fix the blocks down the springs on the rim; F, the central Maltese cross and axis-box; *g*, the circular springs.

By the simplicity of construction, if a spring should break, it may be removed and re-placed, without taking a carriage off the road, in a few minutes. The railroad central nave is of still simpler construction than that for the common road.

[From the London Mechanics' Magazine.]

Bernhardt's Patent Warming and Ventilating Process.

Several indistinct notices have appeared in the newspaper press, both domestic and foreign, during the last twelve months, (and some, it must be confessed, of rather a high-colored description,) of a new mode of warming and ventilating, stated to have been discovered by Mr. Bernhardt, a Saxon architect of considerable eminence, and exemplified by him with extraordinary success in a number of public buildings on the continent. As Mr. Bernhardt has taken out a patent in this country for his invention, and the time for his specification has now nearly expired, we shall soon be enabled to lay the whole particulars of his plan before our readers; but, in the mean while, the following extracts from a statement authenticated by the signature of Professor Schaeffer, of Dusseldorf, may be accepted as good evidence that Mr. Bernhardt has actually arrived at some results of more than ordinary importance—one of which, at least, is, even in this country of high mechanical invention, still a great desideratum, namely, *smoke without soot.* A late distinguished physician (Sir George Tuthill) has left it on record as his deliberate opinion, that the excessive quantity of carbonaceous matter sent forth into the atmosphere of London from its innumerable coal fires is the grand cause of its unhealthiness, as compared with places in its near vicinity.

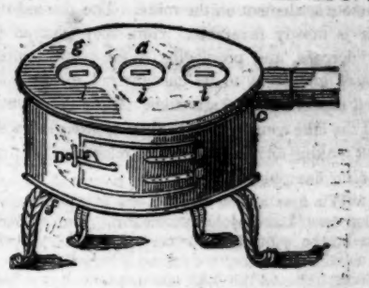
"The Royal General Post-Office built, many years ago, a factory adjoining the post-house, for the repair of the mail-coaches, and since the building of the diligences and the increase of business, it has become a very large coach manufactory, in which above seventy workmen are at present daily employed. In a building at the back, arranged for the purpose, a forge for ten fires was put up and erected in the usual form. Smoke and soot penetrated into the dwellings of the neighbors, and rendered them uninhabitable and worth no rent. Complaints arose, and an expensive law-suit, which naturally terminated to the disadvantage of the Post-Office department. Experiments were then made to clarify the smoke and separate the soot. The Prussian consul in England—that land of invention—was desired to make inquiries whether any means were known to remedy the evil, but nothing could be done; and the most learned professional men doubted the possibility of an invention to answer the purpose, because it was believed that any attempt to separate the smoke from the soot could only be made at the expense of the draught.

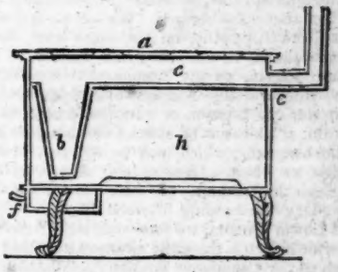
"It became a point of consequence, to the Post-Office authorities here, to satisfy the neighbors at any price, and they endeavored to suppress the nuisance arising from the soot by removing the smithy into an intermediate building constructed for the purpose: the result of experiments by several artists, in inventing an apparatus by means of which it was hoped to banish the soot. A cistern of water was applied over the roof, which was intended, by being placed round the outlet for the smoke, to absorb its heavier parts; but the soot soon covered the water with an incrustation, and the finer particles of the soot escaped from the chimney and covered the gardens of the neighbors; besides the smoke spread itself throughout the smithies, so as to be dangerous and insupportable to the workmen at the fires. At that time the architect, Mr. Bernhardt, of Saxony, was in Berlin, and had been employed in the Royal Palaces; having devoted the whole of his life to the study of the deficiencies at present existing in the construction of fires, he was enabled to correct the similar faults in the General Post-office buildings, and his plans were crowned with the best success. Mr. Bernhardt discovered the means of forcing the draft of the smoke, and separating the soot from it. His plans were carried into execution. *In a short time, without any interruption to the business of the coach factory, the work was completed. The smoke ascends in a purified state through two cylinders of zinc to the roof, and the soot remains in the interior of the three story high building, concentrated in separate channels and chambers for it.*

"It is remarkable to observe the soot depositing itself in coarse particles, and afterwards becoming gradually finer as it ascends; to see the smoke rising through narrow wire nets. In the channels of the five chimneys a mass of 26⅔ cubic feet of soot was found, after three months' purifying, and which had formerly been mostly conducted over the roof."

THE BRUGES STOVE, as improved by Messrs. Cottam and Hallen. By Mr. Edward Cottam.—I send you sketches (figs. 1, 2, 3,) of the Bruges stove, as manufactured by Cottam and Hallen, who have found it to answer fully the statement given by them of it in your Encyclopedia of Achitecture. It will do more with a given quantity of fuel than any other stove, having the means of stewing, boiling, broiling, roasting, and baking, at one and the same time, with a small quantity of coke or cinders from any other fire.

It is simple in form, and there is not the slightest difficulty in its use. The holes in the top may be arranged as is found most convenient for the situation in which the stove is to be placed, either in a line, as in the sketch, (fig. 1,) or in the form of a triangle. One thing is indispensable for the proper action of this stove, and that is a good draught. It must, therefore, have a separate flue.





In figs. 1, 2, 3, *a* is the top of the stove; *b* is the fire pot; *g* is the hole for feeding the fire pot; *f* is an ash drawer; *c* is the flue; D is the oven door; *h* is the oven; *e* is a space for the fire to pass to the flue *c*, and for heating the whole of the top plate, any part of which will produce sufficient heat for culinary purposes; *i i i* are lids, which may be taken off, and the battery of stew-pans, or boilers, will then be in contact with the flame. A grid-iron fits on any of these openings, which has the advantage of not smoking the article broiled, the draught being downwards.—[Loud. Arch. Mag.]

THE WESTERN RAILROAD.—Books of subscription to the stock in the Western Railroad Corporation were opened in this city on the 3d inst. and will be closed to morrow. The amount of capital proposed to be raised is 20,000 shares, of $100 each. On the day of the opening of the books over 7000 shares were subscribed in this city, and about 1200 have been subscribed here since. We learn that about 1500 shares had been subscribed last week in Springfield, and 300 in New York. Of the amount subscribed at the other places where books were opened, we have no accurate information.

The receipts on the Boston and Worcester Railroad, for the week ending the 1st inst. were for passengers, $3203 37: for freight, $502 49: total, $3705 86. For the last week, for passengers, $3897 58: for freight, $384 51: total, $4283 09. [Boston Daily Adv.]

THE PORTLAND AND QUEBEC RAILROAD.—In the New Hampshire Patriot we find a letter from Col. Long, who has been employed in making an examination of the route for a Railroad from Portland to Quebec, addressed to the Hon. Isaac Hill, in which he states some interesting facts relative to this route. From these facts it appears that the route, although by no means impracticable, presents obstacles of a serious character, and more formidable probably than were anticipated by the friends of the enterprise. Col. Long left Portland on the 6th July, accompanied by Charles Fox, Esq., agent for the city of Portland, and proceeded northwardly about 77 miles, to Andover, the most remote settlement on the route. The ground thus far is mostly favorable. Here they entered the wilderness, and proceeding in the same direction, found an ascent to be encountered, of about 500 feet in a distance of six miles. They there entered the lake country, which they approached without making any descent. The residue of the route is thus described:

"We first struck upon Lake Allegundebagog, then upon Lake Molechunkemaunk, both of which are on the same level or very nearly so. Having crossed these lakes, we passed a very flat ridge dividing between the lake last mentioned, and Mooselamaguntic Lake, the latter being elevated about 30 feet above the former. We proceeded thence into Lake Cupmetuc, on the same level, and ascended thence in the valley and vicinity of Cupmetuc stream, to the summit dividing between the waters of the Atlantic and those that fall into the St. Lawrence. In the ascent of this stream, an elevation of at least 500 hundred feet is to be overcome, which may be effected, at a gradation no where exceeding one degree. Having reached the summit, on which we crossed the boundary line dividing between the United States and Lower Canada, we soon struck the Arnold river, which rises in the same swampy tract that gives birth to the Cupmetuc stream, the distance from water to water not exceeding half a mile, and commenced our descent in the valley of the river just mentioned, viz. Arnold's river, and travelled downward about 16 miles to Lake Megantic, the descent for a distance of ten miles being such as to require a gradation of one degree. We then proceeded downward along the Lake and in the valley of Chaudiere river, 60 miles, to the upper settlements on the river last mentioned, the declivity after leaving the Lake, being on an average of about 10 feet per mile. Through the entire distance from Lake Allagundebagog, to the upper settlements on the Chaudiere, we had to groupe our way through a trackless wilderness, encountering thickets, swamps, windfalls, &c., the distance being about 120 miles. We then proceeded down the Chaudiere 66 miles, in view of one of the most beautiful countries I ever beheld, to this city, the entire distance from Portland to Quebec, by the route pursued, being about 275 miles, which is some 8 or 10 miles shorter than the nearest travelled road.—The elevation of the main summit above tide, agreeably to the best observations I have been able to make without the aid of instruments, is 15 to 1700 feet."

The project appears to have been very favorably entertained at Quebec, as we infer from the notices of it in the Quebec papers, and Captain Yule, of the Royal Engineers, was appointed by the Governor in Chief to accompany Col. Long.

[*From the Troy Whig.*]

RENSSELAER AND SARATOGA RAILROAD.—That portion of this important Railroad extending from the village of Waterford to Ballston Spa having been completed, the event was celebrated yesterday by the company with appropriate public ceremonies. The President and Directors of the Company, with the Common Council of the city of Troy and a large party of gentlemen, escorted by the Albany Republican Artillery commanded by Capt. Strain and by Capt. Erckenbrack's Company of Artillery from this city—all under the command of Colonel Cortland Schuyler, as Marshal, assembled at an early hour on the east bank of the Hudson River, near the Waterford Bridge. A procession was then formed, and with the accompaniment of a fine band of music, proceeded across the Bridge where it was met by the civil authorities and citizens of Waterford and was conducted to the Mansion House of that village.—Soon after the procession moved from the Mansion House to the Railroad depot, where a locomotive, to which was attached a train of elegant new Cars, was in readiness to receive the company. The party left Waterford about half past eleven o'clock amidst the loud and long continued cheers of an immense crowd of spectators.

At Ballston the party was met by the military and citzens of the village and neighborhood, and escorted to the Sans Souci Hotel, and the whole company sat down to a sumptuous dinner provided for the occasion by Mr. Waters. The festivities of the table passed off with great spirit and hilarity. The good feeling, cordiality, and hospitality with which the party was received at Ballston, have been spoken of by all the gentlemen with whom we have conversed on the subject, in the highest terms of commendation. On the arrival and departure of the cars, salutes were fired from a field piece placed on the high ground overlooking the village.

The cars left Ballston on their return at half-past four o'clock, and in consequence of an accident, which caused a detention of several hours on the road, did not arrive at Waterford until a late hour in the evening. This circumstance somewhat interrupted the pleasure of the excursion; but we are happy to state that no serious injury was done either to the persons in the cars or to the locomotive. The cars continue their regular trips to-day.

We congratulate the Directors of the Rensselaer and Saratoga Railroad upon the success which has thus far attended their exertions in prosecuting this Road to its completion. The remaining portion of the Road between the city of Troy and Waterford, is in such a state of forwardness as to warrant us in stating that the period is not far distant when it will be ready for the passage of cars. We congratulate also the travelling public upon the increased facilities which the opening of this Road will furnish them in visiting Ballston and Saratoga.

[*From the Dayton (Ohio) Journal of Aug.* 11.]

RAILROAD FROM DAYTON TO LAKE ERIE.—*The Prospect Ahead!*—By the advertisement of the Chif Engineer upon the Mad-river and Lake Erie Railroad, inserted to-day, it will be seen that 35 miles of the work will be put under contract on the 17th of September. This is going to work in earnest, and makes the construction of the road *certain* if it ever was doubtful. The further the examination has been extended into the advantages which will result from it, the more convincing is the evidence that its importance has been underrated—and that it will agreeably disappoint the expectations of those most sanguine of its future usefulness.—At a recent meeting of the Directors held at Bellefontaine, Mr. Bell the Engineer upon the line, communicated information relative to the survey highly important to the board, and interesting to the whole section through which the road passes.—He speaks of the country so far as his survey has extended, as being admirably calculated for the contemplated route, and his estimates of the expense are considerably below those originally made by Mr. Stansberry, the U. S. Engineer. From Sandusky to Tiffin, 35 miles, his estimate of the cost for grubbing and clearing for a double track and completing a single track is $200,800, being an average of less than $7000 per mile. Mr. Stansberry's we believe was but a fraction below $10,000. And it is probable, that Mr. Bell's estimates, upon the whole route, will show an equal reduction with those of the first 35 miles, upon the original estimates of Mr. Stansberry. This is an important item for the stockholders, and we understand it has inspired the Board of Directors with a new incentive to make a commencement at Dayton. We hope the stockholders here will interest themselves on this point, and make the incentive too strong to be resisted.

We are pleased to learn, that the representations made at the last meeting of the Directors, has tended to strengthen their confidence in the value of the stock and the practicability of constructing the road, at an early day. On the 16th of September, the letting will take place. A celebration is contemplated on the 17th, in commemoration of the commencement. All the magnates of the land are to be invited,—Clay, Webster, Harrison, Van Buren, McLean and Gov. Lucas. Every thing indicates success to the Mad River and Lake Erie Railroad, if proper exertion is used. Let the present favorable period for securing it not be lost for lack of exertion. The means will come for the asking, if the request is accompanied by proof of our own faith in that for which we ask the money and the confidence of others. We cannot believe our citizens will allow this auspicious period to pass by without showing that they properly appreciate its importance. No great work was ever accomplished without persevering exertion; and it was so wisely ordained. We believe Dayton possesses sufficient enterprise and activity, for the emergency, if it can be aroused. These have too long remained torpid. We hope the invigorating prospect now presented, will warm them into new life and action.

WARSAW AND LE ROY RAILROAD.—We have been informed by one of the Commissioners, that Mr. J. Hurd, Engineer, will, on the first of next week, commence the survey of the route of this Road, and that it is intended to prosecute the survey, and the construction of the said Road, where it shall be located without further delay.—[Le Loy Gazette.]

WINCHESTER AND POTOMAC RAILROAD COMPANY.—We learn from the Winchester Republican that at the annual election by the stockholders on Saturday last, John Bruce, Esq. was re-elected President of the company, without opposition, and Messrs. Nathan Parkins, Jacob Senseney, Jos. H. Sherrard, and Isaac Hollingsworth, were elected Directors—who, together with Messrs. John R. Cooke, Richard W. Barton, and Gerard B Wager, (appointed on the part of the State,) form the board for the present year.

The receipts of the Boston and Providence Railroad, last week, were, $4,900.

The Charleston Mercury of the 13th, remarks: A respectable West India Merchant of this city, in connection with the agent of the steam packet plying hence to New York and Norfolk, and Captain James Pennoyer, master and sole owner of the new and superior steam packet Dolphin, have determined to make a voyage in the Dolphin from Charleston to Havana, with the view of forming a line of steam packets from Charleston to Havana, and probably by connection with others, thence to New Orleans. The Dolphin will positively leave Charleston for Havana, via St. Augustine, Cape Florida, and Key West, on Tuesday the 10th November next. Persons of respectability disposed to join the party can address to William Patton, Agent, Charleston, with cash enclosed, or proper references. The price of passage is $40.

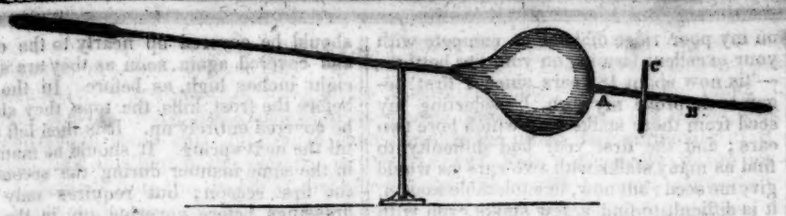
The Dolphin is a perfectly new boat, of most beautiful model, a superior engine, and heavy copper boilers, copper fastened and coppered, elegantly fitted for fifty passengers, and well found in every respect. Of the commander the public need no additional information; he was the very first to introduce successfully, Atlantic steam navigation, and is not surpassed as a skilful steam navigator and polished gentleman.

The Pittsburg Manufacturer of Saturday says: 'The Ohio River is too low for steamboat navigation.'

STEAM CARRIAGES.—A new steam carriage was recently tried, setting out from Westminster bridge and returning thither, after visiting Denmark Hill and Dulwich. The distance, twelve miles, was performed in 41 minutes.

NEW METHOD OF MEASURING DISTANCE.—An ingenious artist has invented an instrument termed a Distance Register, capable of being applied to two and four wheel carriages of every description, for the purpose of ascertaining the ground gone over by such carriages in any given space of time, from one minute to the whole day, and which may be employed with equal efficiency in reckoning the course of either steam or sailing vessels.

METHOD OF BUILDING CHIMNEYS THAT WILL NOT SMOKE.—Contract the space immediately over the fire so you may be sure of the air being well heated *there*: this will ensure a current upwards. All chimneys should be carefully built, and every joint well filled with mortar, so as to prevent communication in case of fire.—[Dr. T. Cooper.]



[From the Repertory of Patent Inventions, &c.]

Specification of the Patent granted to JAS. *and* JOHN HARTLEY, *for a certain Improvement or certain Improvements in the Manufacture of Glass.* Sealed October 22, 1834.

Our invention relates to part of the process employed in the manufacture of that description of glass called crown glass, used for the purpose of glazing windows and other purposes. It is well known that this description of glass is produced from the metal by blowing the same into the form of globes, and afterwards, by means of the operation called "*flashing*," such globes are thrown open into flat circular plates called tables. Now, our invention relates to that part of the process of manufacture which consists in blowing the metal into globes. According to the ordinary process, the metal when taken from the pot by the pipe is rolled on a smooth iron surface, in order to bring the outer end of the metal to a conical form, the extreme end of which becomes the outer axis of the globe during the operation of blowing and working the glass into the required form. This outer axis is called the bullion. During the expanding of the metal into the globular form, the workman rolls the bullion along a straight edge, or bar, called the bullion bar, as is well understood. In doing this, the outer end of the glass globe, whilst expanding, and continually revolving, rubs against the bullion bar, by which action parts of the surface of glass is disturbed or made irregular, and as the globe extends in dimensions this rubbed surface enlarges: the consequence is that when the table of glass is complete, there are at all times more or less waved lines for some inches around the bullion or the centre of the table of glass, which lessens the value of so much of the table. This prejudicial appearance is produced to the glass as before stated by that part of the surface coming in contact with, and rubbing against, the bullion bar, when the metal is in a soft and pliant state. Now, the object of our invention is to dispense with the bullion bar, and to supply its place by the application of a tube or hollow bearing for the bullion or outer axis of the globe of glass during the expansion of the same: by this means that part of the surface which was heretofore rubbed against the bullion bar, is, when worked according to our invention, in no way prejudicially acted on, and the waved appearance before consequent on the manner of operating is avoided.

The drawing represents an ordinary pipe with a globe of glass, the bullion, *a*, being supported by the tube, *b*, in which it is caused to revolve by the workmen when working the metal into the globular form desired during its expansion. On the tube *b* is placed a shield, *c*, which is intended to prevent the heat coming from the heated glass, injuring the hands of the boy who holds the tube. The workman, in performing this part of the process of manufacturing glass, takes a proper quantity of metal on the end of the pipe, and proceeds to form the outer end of such metal into a cone; he proceeds with the process in like manner to that heretofore pursued till the globe of glass requires support at the outer end by its axis or bullion, *a*, that is to say, he proceeds in the ordinary manner up to the period at which (according to the old means of operating) the bullion would have been rested on, and revolved, and run along the bullion bar, but in place of so running it along the bullion bar, a boy holds the tube or hollow bearing, *b*, in such manner as to receive the bullion, *a*, and the workman causes the globe to revolve till the globe is sufficiently expanded. The same is then to undergo the operation of flashing as heretofore.

Having thus described the nature of our invention, and the manner of carrying the same into effect, we would have it understood that our invention consists in the application of the tube or hollow axis, *b*, in place of running the bullion along the straight edge, called the bullion bar, as above described.

Enrolled April 22, 1835.

COOKING BY GAS.—We described some days ago, an application of gas to cooking, which we had witnessed, at the house of *Mr. L. Suydam*, in this city. The annexed article from a London paper, treats of more extensive applications:

APPLICATION OF GAS TO ECONOMICAL AND DOMESTIC PURPOSES.—It generally happens that as the progress of discovery is slow, we are long in developing the full advantages arising from improvements in science or its application to useful purposes. We are led to remark this from the very successful application of gas to a variety of purposes for which it has not hitherto been employed, in heating buildings, and performing every variety of culinary operation, and which, by the very ingenious plans adopted by Mr. Ricketts, has been brought into full and successful practice. The great heat eliminated in the combustion of the common street gas is a matter of every day notice, and it appears that Frederic Winsor, its first introducer, was aware of its availability for all the purposes of heat, as in his first prospectus he issued proposals for a gas light and heat company; but, with the exception of the cooking apparatus recently patented by Mr. Hicks, and exhibited at the National Gallery of Practical Science, and some prior attempts by Mr. Mallet of Dublin, this is, we believe, the first time that in addition to its purposes of illumination, its application to other useful purposes has been shown on any commensurate scale. The plan of heating buildings, patented by Mr. Ricketts, is perfectly novel, and from the most cursory description of its principles, it will be easy to understand its full merits and advantages.

In a stove similar in shape and construction to a common German stove, and with a very considerable radiating surface, a series of jets of gas are consumed, the size of the flame and the supply of gas being proportioned to the diameter of the stove.—An orifice at the bottom admits a supply of air for the support of combustion, and one at the top in form of a chimney carries off the gaseous products of combustion. By this simple and equally efficacious arrangement a great quantity of heat is produced and radiated, an air chamber likewise over the surface of the flame distributing a large quantity of heated air. In confirmation of the advantages of this plan, we can refer to the Church of St. Michael's, at Burleigh street, in the Strand, where a stove of twenty-two inches in diameter is found amply sufficient to produce a temperature of fifty seven degrees in all parts of the building. Objections on the score of danger are readily obviated, by the apertures being made nearly air-tight, the escaped gas, if such should occur, readily finding a vent through the chimney. In the case we have instanced, the total consumption of gas is but at the rate of fifteen to twenty cubic feet, or an expense of between five and six shillings per diem, whilst the attention is confined simply to lighting the gas over night, when in the morning the church throughout is found warmed to the most genial temperature.

The arrangement for culinary purposes is on a plan equally simple & ingenious, different compartments being arranged in a neatly constructed chamber for performing the different operations of boiling, baking, stewing, roasting, &c., by different jets of gas being placed on an adapting and transferring axis. It is sufficient to state that whilst, by this plan, the heat is more uniform than by any other mode of procuring it, when any substance, as in roasting, is exposed to the direct action of the flame, instead of any injurious effect being produced the meat may be better cooked by it, being subjected to a well regulated and uniform heat.

Amongst the various inventions and discoveries of the day, this cannot be considered the least important. In many cases it is desirable to obtain and employ heat without subjecting to the formation and consequent noxious influence of smoke; and we perceive the ingenious inventor has suggested the employment of his stoves, within the arches under the viaduct of the Greenwich railroad, and thus render available, by their conversion into dwelling houses, an extensive property of that company which without them would be valueless. The power of large companies in providing a supply of the means and comforts of life at a great reduction of expenditure is apparent, when the cost of the supply is taken into consideration, and the gas companies at large cannot fail to appreciate an application which will render their commodity more greatly and beneficially available to the public at large.

AGRICULTURE, &c.

INDIAN CORN—RUTA BAGA INJURIOUS TO IT, &c.—The prospect for a fair crop of corn begins to brighten since the warm weather and the rain of the 16th, but the worms of different kinds and sorts have dealt hardly with it, and some fields are nearly ruined by them.

We have seen one field however which surpasses all others. It belongs to Mr. Eliphalet Folsom, of Monmouth. It is an early variety which he cultivates, and on the 15th was spindled out. Mr. F. has a farm with a soil of the right quality for it, and he has paid much attention to the cultivation of early varieties of crops, and by attention and care he succeeds remarkably well. The consequence is, that while his farm yields him a fair profit he does not suffer with that dreadful malady, the "Ohio Fever," which "*has carried so many off.*"

While looking over his corn fields we noticed one thing which we believe is invariably to be found (this year at least) in other places under like circumstances. It is this—wherever Ruta Baga was cultivated last year and Indian corn planted on the spot this year, the crop is small. One side of a field of his was planted last year to Ruta Baga, and the corn on that place this year, though manured as well as the other,

is not more than half as high or good as the other.

We have seen this also in several other places. One in particular where the ground was highly manured this spring, but still it looks as if something was wanting, and does not grow. What does the Ruta Baga take from the soil that the corn needs?—[Maine Farmer.]

[From the Baltimore Farmer and Gardener.]

GIBBES' IMPROVED CORN.—We publish below, from the Yorkville (S. C.) Patriot, a brief though pithy correspondence between two practical farmers, on a subject of great moment to the agricultural interests. It was very happily said by Dean Swift, that "whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together," and we believe we may accord to each of those gentlemen the full measure of that meed of praise, without subjecting ourself to the imputation of being a flatterer.

The method of selecting his seed corn, as followed by Mr. Gibbes, is judicious, and we trust every agriculturist who raises a corn crop will take counsel from the result of his experience, and pursue the same course. Indeed, were planters and farmers, generally, to adopt this plan, with respect to the saving of their seed from the whole range of their several crops, we have no doubt but that the happiest effects would be the result of their labors, in their melioration and improvement. Domestic animals in Europe, and particularly in England, have been brought to their present perfection by selecting exclusively for breeding those combining the best points for the respective uses for which they were wanted; and we see no reason why the same law which regulates the economy of the animal kingdom may not, with equal success, be applied to the vegetable. The experiments of Mr. Gibbes, and those of every other gentleman who has made the trial, go to confirm the belief that such would be the case. We, therefore, are impelled to the belief, that by exercising due vigilance and proper care in selecting seed corn from none but such stalks as are vigorous and large in their growth, fruitful in their yield, and which may have borne two ears or more of good grain, and by being equally careful in the culture, that in a few years, our planters would be able to banish from their corn fields those unsightly dwarf stalks which yield nothing but nubbins, and reward the husbandman so indifferently well for his toils and his outlay.

September 17, 1834.

Friend: Two years last spring I obtained some of your seed Twin Corn. I send in return one stalk with five good ears on it, and if you improve said corn for the space of two years and return me a stalk with six ears, raised on the pleasant fields of Oakley farm, I will try to be able in two years after to return you a stalk raised on the fertile fields of Busrow farm with seven ears. With due respect and esteem, I am yours &c. OLD COL. GILL.

W. S. GIBBES.

Oakley Farm, Sept. 18, 1834.

Old Friend: I have to thank you for your note and stalk of corn with five good ears upon it, and must acknowledge that you can beat me with my own seed, and that I can show nothing like it; nor could I hope on my poor ridge of land to compete with your excellent farming on your flat bottoms—'tis now about 18 years since I first began to improve my corn, by selecting my seed from these stalks only which bore two ears; and the first year had difficulty to find as many stalks with two ears as would give me seed; but now, in a tolerable season, it is difficult to find a few stalks even with less than two, and from that to three and four good ears. The peculiar quality of my seed has shown itself particularly this year, when my whole crop has suffered so severely with drought, yet you see two ears or a struggle for it wherever my seed was sown; but two fields, sown each with different seed that had been highly recommended to me, there is scarcely a double eared stalk to be found in either—the few there are I shall carefully preserve and endeavor to improve, as I like the kind of grain rather better than that I am now cultivating. I shall preserve your five ears carefully also—plant them separately—and next year, Deo volente, let you know the result—though I can hardly expect my land can support and bring to maturity such prolific offspring. Believe me as ever, with regard, WILMOT S. GIBBES.

OLD COL. GILL.

[From the Cultivator.]

THE MADDER CROP.—Hon. J. Buel: Sir, As I consider the madder crop to be one of importance, as well to the grower of the article as to the country at large, I deem it proper to send you a few lines, giving some details of the most improved method of cultivating and preparing the article for use; which, if you deem them worthy a place in the Cultivator, you are at liberty to insert.

The land best adapted to this crop is a retentive, strong, loam soil, moist, but so situated that the water may pass off in the wet seasons of the year. The plant accommodates itself to almost any soil; for I last fall harvested a piece that yielded at the rate of 5,000 pounds to the acre, (in hills,) which was in a dry loamy soil, suitable for the wheat or corn crop.

The method of planting has been formerly in hills, from four to six feet apart. The hills yielded from two to three pounds of ground madder each, on good land.

Madder growers have lately made great improvements in the mode of planting. The drill method was introduced two or three years since, and is now the only way practised by those who raise madder in any considerable quantities. The first drills that were planted were set in single rows, about six feet apart, and eighteen inches from plant to plant. These were found to be too near together, both for the good of the crop and the convenience of tending it. It is now ascertained that the best method of planting madder is in beds six feet wide, with four rows of plants to a bed, leaving a space between the beds nine feet wide unoccupied; or it may be planted with rows of corn or potatoes the first season. This space is useful for various purposes, as passing with a team to carry manure, should it be considered necessary during the first and second seasons. The manure should be cropped between the beds, and mixed with a plough before it is used in the beds.

Particular care should be taken at the time of planting, that the ground be not too dry. It should be covered with clear, moist dirt, about two or two and a half inches deep. Soon as it has come up, it should be carefully hoed and cleared from weeds. When it is six or eight inches high, the tops should be covered up nearly to the ends; and covered again soon as they are six or eight inches high, as before. In the fall, before the frost kills the tops, they should be covered entirely up. It is then left to lie till the next spring. It should be managed in the same manner during the second as the first season; but requires only two dressings before covering up in the fall. During the third season it should be dressed once certainly, and twice if practicable; and by this time the tops may be expected to cover the ground nearly from one bed to the other. During the fourth season, it requires no attention till the time for digging, which may be any time in the months of September or October. At digging time, the tops should be cut off with a scythe, rolled out of the way; then, with a plough, cut a deep furrow on each side of the bed, afterwards take dungforks and shake the dirt from the roots. They may then be picked up. Proceed in this manner till the whole bed is dug; washed clean, and dried in a hop kiln. A stove is preferable to charcoal for drying. Fifty bushels of roots may be dried in a kiln 12 feet square. They should be turned while in the kiln, at least once in six hours, until they are thoroughly dried, which takes from 36 to 40 hours. When taken out of the kiln, they should be taken immediately to the mill for grinding. Madder has formerly been ground in grist mills, but a much more convenient and economical way is to grind in cast iron mills constructed expressly for grinding madder. They also answer a valuable purpose for grinding coarse grain for provender, in sections of country where grist mills are not near by. They may be propelled by horse power, (one horse being sufficient,) or by water power if it is convenient. One of these mills will grind 800 or 1,000 pounds a day with one horse. Improved mills of this kind can be obtained by applying to me, at West-Winfield, Herkimer county, or Lester Curtis, Nelson, Madison county. Orders for mills will be promptly attended to: price $20.

The following bill exhibits nearly the cost of cultivating an acre of madder, including the expense of digging, drying, and grinding.

Seed per acre,	$32 00
Interest of land, 4 years at $40,	11 20
Ploughing and harrowing twice,	2 50
Planting,	2 00
Dressing first year,	8 00
" second "	7 00
" third "	3 00
Digging,	21 00
Drying, 25c. per cwt.,	12 50
Grinding " "	12 50
Total cost,	111 70
Product if well cultivated, 5,000 pounds, at 20c. per pound,	1,000 00
Deduct cost,	111 70
Nett profit,	$888 30

A good crop of madder looks small the first season, but those interested need not be discouraged. I have now planted nine acres, and shall be ready at the season for digging to supply seed to a considerable amount. Those who wish for seed had better obtain it in the fall. Quantity per acre as I plant, 8 bushels.

Price of seed: Under six bushels, $4 per bushel; over 6 and under 12 bushels, $3·50; over 12 bushels, $3.

Respectfully yours,

HERBERT WOODBERRY.

West-Winfield, N. Y., July 20, 1835.

[From the same.]

BEET SUGAR, &c.—J. Buel, Esq.: Sir,—I recollect a few years since of seeing an account of sugar being made somewhat extensively, in some parts of France, from beets. As this part of the country is at some distance from the sea-board, and also destitute of the sugar maple, which renders sweetening quite expensive, if you are acquainted with the kind of beet used, together with the process of manufacturing, you will oblige many of your subscribers by inserting the same in the Cultivator. Or, if you are acquainted with any other substitute, it would be equally acceptable.

Should it not be foreign to the object of your paper, will you please to give us a recipe for making "India Rubber Varnish," for rendering leather water-proof? And here, permit me, without being suspected of flattery, to add my name to the list of encomiasts of your valuable paper. I think the two first numbers of the second volume are worth the price of the year's subscription; at least they are so to me.

Yours, respectfully,
WM. A. JONES.

Dexter, (Mich.) May 12, 1835.

Reply.—Mr. Jones' inquiry may be important to the far west, for the reasons he has stated. We therefore subjoin a description of the process of making beet sugar, as given by Chaptal, who was at the same time an extensive manufacturer of the article, and an eminent chemist, with some other facts connected with the subject. Our quotation is from Orfila's Practical Chemistry, p. 129–30.

"The beets are sown at the end of March or in April, [last of April or first of May with us,] when frost is no longer to be apprehended; it seems nearly indifferent whether the seed of the red, yellow, or white beets are taken. The earth most proper for their cultivation is that which has depth, and at the same time is light and rich; that which comes from the clearing up of meadows, alluvial soil dunged and long worked, are preferred for this purpose. These grounds should be prepared by two or three very deep ploughings, and a sufficient quantity of manure. The beets are sown at random, like wheat, and it is then harrowed; this mode has more advantages than that of sowing by the hand, the drill plough, on beds, or in the nursery. All the plants which grow near the beets, and whose vicinity is very hurtful to them, are pulled up by the hand or a weeding hook. The period of taking up this plant differs greatly, according to the climate; in the environs of Paris, and even at forty or fifty leagues from the capital, we should proceed to take them up in the beginning of October, whilst in the middle countries this operation should take place much sooner; without attending to this, it happens that the sugar formed is decomposed by the process of vegetation, and is replaced by nitrate of potash.

"After stripping the beets of their leaves, they are placed in the open air, on a very dry soil, beyond the reach of inundation, and which is covered with some pebbles and straw: the beets are placed in beds, in the centre of which a hole is left to give exit to the vapor, and the beds are covered with straw. These precautions are indispensable—since, on the one hand, the beets freeze at 1° to 0°, (32 to 34°, Fah.,) and on the other, they germinate at 8 or 9°, (48°, Fah.,) especially if the air is moist. It would be more convenient to preserve them in barns and granaries; but it is almost impossible to find a situation of this kind capable of holding all the beets we want. If, nevertheless, we choose to put them into magazines, we must, 1, leave them in the field some days to dry; 2, uncover them when the temperature is only a few degrees above zero, unless it rains; 3, separate the heaps, remove the frozen or putrified beets, and renew the beds, [piles.]

"*Extraction of the Sugar.*—We cut off the necks and small roots of the beets, and scrape the surface with knives. They are reduced to a pulp by means of cylindric graters, [similar, probably, to our grater cider mills,] moved rapidly with the hand, or by some contrivance. The pulp is pressed, at first, in small lever presses, and then by much more powerful ones; by this plan, we procure from 65 to 75 per cent of juice, which marks from five to ten on Baum's areometer. This juice contains, besides those substances found in the juice of the sugar cane, malic and acetic acids, and scarcely will it afford more than three or four per cent. of sugar. It is received in a boiler called the clarifyer, which is heated when one-third or one-half filled. When the temperature is 65 or 66° (Cent. = 150° Fah.) the fire is stifled. We then throw into the boiler about 48 grains of lime, slaked with warm water, for every quart of juice, and the liquor is then brought nearly to ebullition; it is taken from the fire, and on its surface is soon perceived a layer, which is skimmed off. The liquid is then made to run out by means of a stop-cock fixed at the distance of a foot from the bottom of the boiler.

"The liquid is quickly boiled, and sulphuric acid diluted with 20 parts of water is poured on in the proportion of one-tenth of the lime employed; it is stirred, and it is better the mixture should have a slight excess of lime than of acid. We mix with the liquor 3-100 of animal charcoal, perfectly fine; for instance, that which is produced in the preparation of Prussian blue. Immediately afterwards, we add half of the charcoal which has served in a former process, and the boiling is continued until the liquid marks 18° or 20° on the areometer; it is suffered to rest until the next day, when it is strained through a woollen cloth; it is then put into a round boiler, two feet in breadth and ten inches high; this is one-third filled, and it is again boiled. If the contents are burned, the fire is relaxed, and the liquor is stirred; if the bath foams much, a little butter is thrown in, and the heat moderated. The boiling is ended, when, on taking a little of the syrup between the thumb and fore-finger, and quickly separating them, a thread is formed, which breaks *dry*. At this period the fire is covered, and after some minutes the syrup is poured into *coolers*, and from thence into the cones"— after which it may be subjected to the processes of *refining* or *claying*, like West-India sugar.

The manufacture of beet sugar was prosecuted in France extensively during the late war; but on the return of peace, was in a measure abandoned. It has recently been revived, and is said to be rapidly increasing; and land for beet culture lets for a higher rent than any other production. About 18,000,000 pounds, or 18,000 tons, are said to be produced annually, and the profits are so great that it has been recommended to the French legislature to tax it for revenue.

According to the tables of Dubrunfaut, the average product, in Flanders, in ten cases cited, was 23,751 killograms the hectare. The killogramme is about 2½ pounds; the hectare 2½ acres. He estimates the raw sugar at four per cent. on the weight of the roots, the pulp to be worth 12 francs (about $2.28) per ton, for feeding stock, and the molasses worth something additional for distillation. Dr. Achard obtained 6 lbs. 3 oz. raw sugar from a quintal of roots. Dubrunfaut estimates the cost of the sugar to the producer at about five cents per pound; at the manufactory of M. Crespell, the cost was 6 to 7 cents per pound.

Chemistry has discovered a new material for sugar, in wheat, the great staple of the west. It was first announced by a Russian chemist, M. Kirchoff, that starch may be converted into sugar, by being boiled for some time in very dilute sulphuric acid; and M. The. Saussure found that 100 parts of starch made 110 per cent. of sugar, and he concluded that sugar is merely a compound of starch and water. According to M. Berzelius, starch and common sugar are thus composed, though other chemists make the component parts of sugar somewhat different: Starch—Oxygen 49.6, Carbon 43.5, Hydrogen 7.0; Sugar—Oxygen 49.856, Carbon 43.265, Hydrogen, 6.879. Hence, the abstraction of a little hydrogen and carbon would convert starch into sugar.—[See Brewster's Encyclopedia.]

The butternut affords sugar. We have a sample before us. The maker informs us that the butternut yields as much saccharine matter as the maple. Our sample is not well granulated, having been merely made as an experiment.

WOOL AND HAIR are known to possess highly fertilizing properties—they are, in reality, like bone and horn, concentrated manure. Until recently, refuse flocks of either could not be obtained in any considerable quantity: but our manufactories now afford them to such an extent as to entitle them to the farmer's notice. We have employed hair, combined with oil, from a seal skin manufactory, in considerable quantity, and with the best effect. Woolen factories furnish considerable waste flocks, combined with grease and dirt. Mr. Jabez Burroughs, of Watervliet, has been experimenting with these, and informs us that they exceed all other manures, when applied in one third the quantity that hog manure is applied.—[Cultivator.]

Straw Cutters and other Agricultural Implements.—We spoke in another paragraph of the great saving which would accrue to the farmer or planter, by cutting the hay and straw with which he may feed his stock, and we will now call his attention to the several machines at present mostly approved of.

There is the 20 inch cylindrical straw cutter, suited to horse or water power, and competent to the cutting of from 75 to 100 bushels per hour. This, on a large estate, where time is emphatically money, would be found of immense value.

Of the same construction, there is the 14 inch box, suited to manual power, and the 11 inch box, also adapted to manual power, and both in high repute with agriculturists, being easily kept in order, and of great capacity. They are all self-feeders, and from the peculiar form of the knives, and mode of application to the straw or hay to be cut, can be worked a long time without sharpening, which circumstance is of itself of decided advantage.

And then there is the common Dutch Straw Cutter, with and without treadle, whose good service is familiar to a large number of farmers.

These several kinds range from 75, 45, 27, to $20, and even so low as $5.

When so much convenience is to be secured from such a small sum, with a positive certainty of saving one third the quantity of food, no farmer or planter should hesitate a moment, if he has not already done so, in supplying himself with a machine.

But while we are enumerating other inventions, we must not omit to name the straw cutter recently introduced by Mr. Secor, a neat, convenient machine, which appears to combine both the economy of time and power, and although a stranger among us, comes well commended to public favor.

Of *ploughs*, there is the Self-Sharpening, the Wood's, the McCormick's, the Sinclair & Moore's improved, the Bar Share, the Hill Side, the Shovel Plough, the Cary Plough, the Buffalo Plough, (an approximation to Mr. Jefferson's plan,) —these, of all their various numbers, sizes, and prices, have been so improved of late as to leave but a barren field for future essayists in improvement to glean in.

Nor should we here omit to mention that most excellent implement, the *Cultivator*, which, though neither plough nor harrow, answers a better purpose than either for *cultivation*. This is a machine which we fear is not sufficiently known; for, of a certainty, it is one of the best things introduced into the business of husbandry for fifty years, and deserves a conspicuous place on every farm.

But to conclude our article—we would in an especial manner call the attention of every raiser of corn throughout this land of mountain and dell, of endless rivers, and countless lakes, to the corn sheller; for in verity it is the most potent little labor-saver we have ever seen. We allude to the one with a vertical iron wheel, with spring holders, competent to be adapted to the size of any ears. These by hand will shell you out from 15 to 20 bushels of corn in an hour, and it does its work so notably, and with such becoming cleanliness, as to take every grain from off the ear. From witnessing its operation the other day, we should think it would cure a lazy fellow of the ague and fever, who would feed it for a day.

But then we have our misgivings about recommending so *positive* an *innovator* upon the good old fashioned customs of the country. One thing is certain, that wherever one of these vertical gentlemen may show his face, there will be an end to those delightful corn husking and shelling squeezes, whose discordant sounds, and boisterous revelry, come down to us hallowed by the fond associations of an hundred years.

Well, be it so, this is the age of invention, and why should not its march be extended to those who cause the fields to teem with vegetable life, as well as to any other class.

But badinage aside, one of these diminutive machines, by hand power, worked 12 hours in a day—and they do not occupy more space than a flour barrel on its end—would shell 500 barrels of corn in two weeks. What the saving would be, every farmer can calculate for himself, and therefore we will content ourself with simply saying, that the other day, in witnessing a trial of its skill, we were literally astonished; before we thought the ear of corn was fairly in the sheller, it had performed its office, and the grains were lying at our feet.—[Balt. Farmer and Gardener.]

The neglected Ladies' Slipper.—We see by a notice in the August number of the Horticultural Register, that at a meeting of the London Horticultural Society, in May, a number of beautiful flowers were exhibited, and among them a *North American plant*, called the *Ladies' Slipper*, which, it is added, is the most brilliant plant that has ever been brought to England. So the poor neglected *Ladies' Slipper* has found favor at last!! Than which, a more beautiful flower, one of richer or more varied hue, does not adorn a river; but it is *common*, and that is enough to seal its fate. We have in our view, while we are writing this, a giant stalk of *imperial purple flowers*, as double as leaves can make them, as glossy as satin, and in the *tout ensemble* presenting a sight more beautiful than Cleopatra in all her loveliness and glory; but still it is but a *ladies' slipper*—an American ladies' slipper, and like the prophet of old, it has to go out of its own country in search of honors.—[Balt. Farmer and Gardener.]

Natural History.—M. Dussumier, a merchant at Bourdeaux, has presented to the Garden of Plants several living animals of great rarity, among which are the dizigguetai, or humione, the wild horse from the centre of Asia, which has never before been seen in France; the ours jongleur, an Indian boar, a sheep of the pure Asiatic breed, a stag, from the Axis, and several apes and monkeys. —[Paris Advertiser.]

[From the Cultivator.]

Circular addressed to the Raisers, Inspectors, and Consumers of Hops.

At a meeting of the brewers of the State of New-York, convened in the city of New-York, 6th March, 1835, to take into consideration the causes of the present ruinous and improper practice of picking, curing, and inspection of hops, by which a very large proportion are rendered worse than useless, and others materially injured, a committee was appointed, and their chairman made the following report:

In presenting this communication, it is unnecessary to make any other remark to those interested, than to refer to the important facts that are here disclosed, to show that prompt and efficient measures ought to be taken to effect a radical change in the present system of picking and curing, as well as a corresponding change in the standard of inspection of hops.

We ask the patient indulgence of brewers, farmers, and inspectors, for the liberty we shall unavoidably be compelled to use, in pointing out the errors that have been fallen into. Your committee are aware of the great difference between persuading a man of the truth of any new proposition, with that of convincing him he is wrong, and satisfactorily inducing him to take the way of truth. We know we have one difficulty to contend with, to surmount which we are apprised will require not only all our ingenuity, but also all the forbearance of those concerned. This difficulty is the ready sale of hops in our market, in the imperfect condition they are now produced. The farmer would naturally enough ask why all this clamor about lupulin resin, early and late picking, while we can get 16 cents per pound, and 2,000 pounds per acre, near ($320 per acre,) per annum? This is all fair enough, and we will further admit, that some individual who may ask this question has himself produced hops worth the money, and as good an article as either this or any other country is capable of producing; but our complaint is that there are but very few of this fine quality, not one bale in ten. We think we speak advisedly, when we repeat, that out of the 8,500 bales, the produce of New-York and the eastern states, there may not be more than 8 or 900 bales in prime order; that we may be perfectly understood, we earnestly solicit a careful perusal of an analysis of hops by Dr. Ives, of New-York, and published in Silliman's Journal of Science, 2d volume. Since which, the attention of many of the first chemists and physicians, French, Scotch, and English, have carefully experimented on them, and the result has been nearly the same. In one *essential particular* they *all* agree, which is that the only valuable properties are contained in the resinous globules, which Dr. Ives calls lupulin. These globules are not formed until a few days before the hop is ripe, and if picked either a few days too soon or too late, the hop is an injury instead of being of any service, as they possess neither preservative nor medicinal qualities. The experiments of Dr. Ives are so nearly correct, and as he merits the gratitude of his countrymen for his labor and skill in first bringing these matters before the public, we will copy a part of them, that they may be the more extensively known, and hope the valuable and important facts they disclose may have their just influence in correcting the many errors that have obtained, in the picking, curing, and inspection of hops.

EXPERIMENTS.

"Two drachms of leaves of the blossom

of the hop, from which all the lupulin or farina had been separated, were digested 12 hours in six ounces of boiling water. The infusion was bitter and exceedingly unpleasant to the taste; it possessed none of the aromatic flavor and peculiar bitter of the lupulin. When filtered and evaporated, it yielded five grains of nauseous extract.

"The same leaves were again digested in six ounces of proof spirits; after 12 hours the infusion was filtrated, and by evaporation yielded five grains of extract similar to the last. The same leaves were digested 24 hours in alcohol: the infusions manifested none of the sensible properties of the hop; it gave by evaporation four grains of extract. The taste of none of the extractive matter obtained, from the leaves, was sufficiently characteristic of the hop to designate that it was obtained from that article.

"From this, and other similar experiments leading to the same results, I think it is conclusively proved that the virtue of the hop resides exclusively in the lupulin; that the leaves contain a nauseous extractive matter which is imparted to water and to alcohol, and which, instead of adding to the bitter and aromatic flavor of the lupulin, partially neutralizes or destroys it.

"The obvious inference from these results have, as I conceive, been demonstrated —that the lupulin alone contains the bitter principle and the aromatic flavor of the hop, which are essential to the excellence and preservation of malt liquor."

These discoveries of Dr. Ives, immediately brought the attention of M. M. Payne, and M. Chevallier, two of the most eminent chemists of France to this subject. The learned compiler of the Materia Medica, Brewster's Edinburgh Encyclopædia, Doctor John Bostock, M. D. F. R. S., Dr. Paris, an able, profound medical writer, all agree that the lupulin is the only valuable part of the hop; and Dr. Paris particularly mentions the hop as the most valuable ingredient in ale, its stomachic qualities powerfully aiding digestion, "and particularly useful to the lower classes, enabling them to digest their innutritive food;" he says Dr. Franklin was wrong in condemning ale, and deprecates "the disappearance of small beer from the tables of the rich, as there was nothing to replace the tonic of the hop."

From the above authorities there is one certain fact established, which proves conclusively that the leaves forming the pod of the hop contain nothing of value for the purpose of brewing; an acrid nauseous bitter, the only properties they possess.

In looking back to the qualities of hops the markets for the last fifteen years have furnished, our opinion is, that the standard has gradually deteriorated; many are now branded firsts which have been picked before the resin had begun to form in them, and a very large proportion of those branded firsts are picked before the hops are ripe, and the resin or lupulin but partially appearing, being only sap, as soon as dry it is dissipated, and very shortly after, not even the smell of the aroma is perceptible.

This principal error of picking hops before they have arrived at maturity, is followed by another, as far as it goes, equally pernicious; using brimstone to give them the appearance of maturity,—hence our markets are furnished with first-rate hop pods or leaves, without any lupulin, possessing only the nauseous, acrid bitter, of unripe vegetation, and charged with sulphuric acid, the most deleterious matter to a vinous fermentation.

Various circumstances have combined to bring about this lamentable state of things. The inspector is not the principal in fault for branding as firsts those which are *refuse* from early picking and brimstone. This error no doubt had its origin with mistaken men conducting the brewing business, and ignorant of either the culture, curing, or their essential properties. These men wanted hops that would impart no color to their liquor, and advised the inspectors, that hops, when ripe, were refuse, because when ripe, the leaves forming the head of the hop acquired a brown or yellow tinge, slightly coloring the ale; consequently, the inspectors have branded those hops *firsts*, which are gathered *green*, before the lupulin is formed in them, and from this ill-advised source, brimstone has been introduced and applied to both early and late picked hops; to the early, to take away the green, and to the late, to take away the brown color, and bleach them all to the imaginary pale ale standard. By this pernicious course, the rinds, if we may so term them, are substituted for the fruit, and for the wholesale aromatic resin, we are presented with an acrid, unhealthy bitter.

Another cause may explain why our markets are yearly retrogading, which is, the early demand for shipping, or a scarcity among the brewers; hence often enormous prices are paid for trash, not worth the cartage for manure. This early demand makes numbers eager to avail themselves of the chance of advanced prices and the first sales, while they run no risk of the inspectors condemning them, from early picking. The farmers also find their interests served in early picking, as it gives a much longer time for harvest, enabling them with but trifling help, and less kiln room, to secure their crop: and can we blame them, while brewers and inspectors second their wishes?

We have no personal feelings, nor intend attaching censure to any individual; but insist that our present standard of inspection is an imposition; it does not indicate the maturity or intrinsic value of the hops. To be a competent judge of hops, requires experience, and a nice discrimination; it is impossible for any man to decide, correctly, unless he is capable of distinguishing every peculiar odor that hops may have; his sense of smell must be acute; it is not enough that the hops are dry, that they look well on the outside, that they have not been heated, smoked, stewed, brimstoned, or burnt: they must have the strong, pungent, aromatic smell of the hop when ripe, and just plucked from the stem; they must have the small globules of resin or lupulin, like gems surrounding the cove of the pod, and covering the bottom of the calyxses or leaves; without this lupulin they are refuse. All which is respectfully submitted.

L. Fidler, Chairman.

Resolved,—That this report meet the approbation of the trade.

R. Boyd, President.
M. Vassar, Secretary.

The above report was transmitted to the brewers of Pennsylvania, and the following gentlemen were appointed a committee, who concurred with the brewers of the state of New-York, in the adoption of the above report.

George Pepper, Frederick Gaul & Sons; Samuel N. Gray; Hutchinson & Stump; Abbott, Newlin & Co., Francis & W. J. Perot; M. L. Dawson; Thos. C. Luders.

Philadelphia, June 18, 1835.

[We have received for publication the circular of the Pennsylvania brewers, which we deem it unnecessary to insert, as the opinions it expresses accord with those in the preceding circular.]

Remarks of the Conductor.—We cheerfully give insertion to the above communication, as containing matter worthy the notice of farmers, particularly of the hop grower. And we beg leave to suggest to the worthy fraternity of brewers, as the most ready and efficient means of improving the hop culture, the propriety of offering liberal premiums for the best samples of hops that shall be exhibited at the Albany October Fair. This is a great hop market, and the crop will then be mostly ready for sale. It will be the means of congregating together the growers, buyers, and inspectors; of instructing all in the criteria which indicate the first quality; of demonstrating the relative value of good and bad parcels; and of instructing the growers in the best methods of curing their crops. Let a judicious committee be appointed, to decide on the relative merits of the parcels shown; to point out defects, explain the causes of them; and to report facts, with directions for managing the curing process. All parties would be benefitted by the arrangement here recommended.

The Grain Worm is literally destroying our wheat fields. The product of this crop in our vicinity will probably not be equal to the seed sown, although but for the worm the prospect was flattering. We do not know how far south and west the evil has extended. Steeping the seed in brine, and liming it, has not proved to be a preventive. We invite communications on this subject.

The warm and wet weather in the month of July has also been prejudicial to the wheat crops, in causing rust, which it is well known checks the circulation of the sap, and causes the grain to shrivel. It is a received opinion, that the grain ceases to enlarge when it becomes badly affected with rust, and that it is most advisable to cut it, though not arrived at maturity.—[Cultivator.]

[From late English papers.]

Silk Culture.—A company has been formed in Norwich for rearing silkworms. They are possessed of 120,000 of these valuable insects, in a most healthy state, and have planted 1,000 mulberry trees for future provisions. In the meantime contributions of mulberry leaves have been liberally afforded by many gentlemen who are desirous of encouraging the undertaking.

American Aloe.—One of those sights which are said to occur but once in a century, the blooming of the American aloe, will shortly take place in a specimen of the variegated variety at the Surrey Zoological Gardens. It is believed to be about seventy years old; the crown of the plant opened on the eighth of June, and the flower-stem has been growing at the rate of about four inches a day; it is calculated by gardeners that it will reach to the height of from 24 to 28 feet, that the number of flower-buds will be from three to four thousand, and that it will continue flowering nearly six weeks. The period at which the agave arrives at maturity varies according to circumstances; in hot, or otherwise favorable climates, it grows rapidly, but in milder regions, or under the care of the gardener, it requires the longest period that has been assigned to it, which has given rise to the popular error, that the flowering occurs only once at the end of one hundred years.

The subject of exportation of flour from this country to America, in consequence of its high price in the United States, and the low value it realizes here, has excited some interest at Liverpool.

Patent Laws.—Lord Brougham brought in a bill to alter and amend the law of patents. The objects intended were generally to facilitate the obtaining of patents, and to secure the enjoyment of them to the inventors.

NEW-YORK AMERICAN.

AUGUST 15—21, 1835.

SUMMARY.

CAPTAIN BACK.—The Montreal Gazette says—

As our citizens have always taken a lively interest in this expedition, we think it right to lay before them again the instructions which Capt. Back received from Government, shortly before leaving England, (as detailed by the Arctic Land Committee, in the prospectus published by us in April, 1833,) and then so far as we are able, from the information we have been able to procure, afford them a brief sketch of what was actually accomplished. After directing him to place himself at the disposal of the Hudson's Bay Company, the instructions ran thus:—

"To leave Liverpool early in February, and to proceed with his party by way of New York to Montreal, and thence along the usual route pursued by North West Traders, to Great Slave Lake, which it is hoped that he will reach by the 20th July. He is then to strike off to the north-eastward, or in such other direction as he may ascertain to be the most expedient, in order to gain the Thew-ee-cho, or Great Fish River, which is believed either to issue from Great Slave Lake, or to rise in its vicinity, and thence to flow with a navigable course to the northward till it reaches the sea. On arriving at the banks of this river, he is to select a convenient situation for a winter residence, and immediately appoint a portion of his force to erect a house thereon; but, if possible, he is to proceed himself with an adequate party, and explore the river to the coast the same season, creating a conspicuous land-mark at its mouth, and leaving notice of his intention to return the ensuing spring, in case Captain Ross should be making progress along this part of the shore. He is to take care, however, to return before the commencement of winter, to avoid any undue exposure of his men. During the winter he is directed to construct two boats capable of navigating the Polar Sea; and, as early as possible in the ensuing spring, again to descend its shores.

"His proceedings afterwards are necessarily left much to his own judgment. He is first to push on to Cape Garry, where His Majesty's late ship Fury was wrecked; on the remaining stores of which it is known that Capt. Ross in some measure relied; but in making for this point, whether by the east or west, he will be governed by the position of the mouth of the river, and other local circumstances, as he progressively ascertains them. While passing along the coast, he is to keep a vigilent lookout upon the shore for any signal or indication of the party which he was in search of (particularly at the entrance of the Hecla and Fury Straits, should he take the eastern passage:) and in the event of his meeting them previous to his arrival at Cape Garry, he is to offer to return and conduct them to the Hudson's Bay Settlement.—Or, should he find any indication of their having been on any part of the coast before his arrival, he is to search minutely for some memorial, that may lead to the discovery of their intentions; and proceed, in the event of success, in whatever practicable direction may seem best calculated to lead him to them. But whatever may be his prospects of success, he is on no account to prolong his search beyond such a period of the year (varying from the 12th to the 20th of August, according to the distance he may have attained) as will ensure his return to his winter quarters before the severe weather sets in; as on his acting in this particular with due caution, may depend the eventual safety and success of the whole expedition.

"On his return to his temporary establishment he is carefully to examine the state of his supplies communicating also with Great Slave Lake, to ascertain whether additional stores are there collected for him. And if he finds that he can, with reasonable prudence, devote a second summer to the service on which he is engaged, he is directed to do so, proceeding in a different direction to that previously traversed; but if not, he is to return to England in the following spring.

"Subordinate to the object of finding Capt. Ross, or any survivors or survivor of his party, he is to direct his attention to mapping what remains unknown of the coast which he visits, and making such other scientific observations as his leisure will admit, for which purposes the requisite instruments have been supplied to him. But he is not for such objects, to deviate from his principal pursuit, until he shall have either succeeded in its accomplishment, or satisfactorily ascertained that its success is impossible."

During the winter, the expedition had to endur great privations and sufferings, owing to the scare city of food, and the severity of the weather. On the 25th of April, being exactly one year after he had left Lachine, and during a very heavy snow storm, the despatch communicating Capt. Ross's safe return was delivered to Capt. Back. The primary object for which the journey was undertaken being thus happily fulfilled by other agents, Capt. Back made preparations for complying with the secondary part of his instructions—the examination of the coast between Point Turnagain and Ross's Pillar. Several boats were with the utmost activity built during the winter, but in spring, finding that they had an insufficient supply of provisions, they could only take one with them. It was not until the month of July, 1834, that the expedition got to open water on the Thlew ee-chodezeth, or Great Fish River. Captain Back, we believe, succeeded in determining that this river runs to the northward, and if we understand the purport of the scanty information which has reached us, it has its source on a height of land, about 150 or 200 miles from Fort Reliance, the winter establishment of the expedition, at the eastern extremity of Great Slave Lake. Capt. Back is the first European who has visited Great Eish River, and examined its course to the Polar Seas. Its very existence was doubted by many geographers. It is said to be large, but dangerous of navigation—greatly impeded by ice, and having little but mounds of sand along its banks. It falls into the Polar Sea, at a point, as far as we can learn, that coincides very near to the place assigned to it by Captain Back and the Arctic Committee in London, in their prospectus already referred to.

Farther than this, we only know that the party of intrepid travellers had to encounter every obstacle to which polar navigation is liable, and we are led to believe that immense masses of ice, accompanied by uncommonly severe weather, finally arrested their progress.

How far the labors of the expedition will increase our knowledge of the line of coast, we are unable to say; but from what has been stated above, it is obvious that a new route has been opened to the Polar sea, and that a large blank which formerly struck the eye, on surveying the map, will now in a great measure be filled up.—Captain Back will, we believe, have much interesting informatiou to communicate, respecting his observations on the Aurora, the changes on the needle, as he drew Northward, &c.. The extreme cold, experienced, we learn, was 70 deg. below zero.

The expedition returned to Fort Reliance, which place Captain Back left on 20th March, 1835, and travelled on snow shoes to Fort Chipewyan.—From this station he departed on 28th May, and arrived at Lachine, as already mentioned, on the 6th inst.

Thus has terminated an expedition undertaken from the most generous and lofty motives of which our nature is susceptible, pursued with the utmost ardor and zeal, and conducted in safety through dangers and difficulties of no ordinary kind, with the most consummate wisdom.

Captain Back arrived in Montreal this morning, and will leave for New York in a day or two, in order to embark in the packet ship of the 16th inst. for Liverpool.

The President of the United States returned to Washington on Monday, from his visit to the Rip-raps.

The Jersey City Ferry has, it will be seen, reduced the rate of ferriage on pleasure carriages. This will have the effect, doubtless, of tempting citizens in search of pleasant drives, to cross the Hudson for them.

It is said that the population of Springfield, Massachusetts, has increased within five years about twenty-five per cent. In 1830, it was 6,784: it is now 8,411.

It is stated that the annual worth of all the mechanical and manufacturing products of the United States, is about five hundred millions of dollars.

[*From the Philadelphia Gazette.*]

THE GIRARD COLLEGE.—Our readers are acquainted with the fact that the Board of Trustees of the Girard College charged Dr. Lieber with drawing up a plan of education for the great institution to be erected by the munificent bequest of our late fellow citizen. The Board ordered Dr. Lieber's report to be published, and both in French and German periodicals which concern themselves with subjects relating to education, not to speak of our own American journals, this complete and able work of our townsman has been spoken of in high terms. We are particularly pleased to notice the nineteenth No. of the London Quarterly Journal of Education, published under the superintendence of the Society for the Diffusion of Useful Knowledge, where an article on the same work with copious extracts and many flattering remarks, will be found. The reviewer says towards the end of this article: "The sound views developed by Dr. Lieber gives us reason to expect the eventual success of the College from which we trust that the U. States will derive every advantage that her best friends can wish."

In regard to that portion of the Report, however, in which Dr. Leiber expresses his opinion, that it could not have been the design of Mr. Girard to exclude *religion* from the College, the Reviewer seems to take exception to it. He thinks the Dr. has not construed the will with sufficient strictness, which, to say the most of it, is charging him with a bias that can injure no man who has charge of a literary institution.

The cause of civilization has at length really become a general and *international* cause, and while we find a London periodical recommending the remarks of Dr. Leiber to general attention, we see that an official report made to the Legislative Council of Geneva, refers to our penitentiary system as the most perfect, and to Dr. Lieber's remarks in his translations of the work of Mons. Beaumont and Torqueville on the same subject, as of great importance in this cause of absorbing interest. Dr. Lieber has been elected to one of the chairs in the S. Carolina College at Columbia, whither, as we understand, he will shortly proceed. We congratulate this Institution upon the acquisition of so capable and learned a Professor, and doubt not that the anticipations of those who have been instrumental in placing him there, will be fully realized.

GREAT STEAMBOAT SPEED.—The steamboat Robert L. Stevens, Capt. Dean, left New York at fifteen minutes past twelve o'clock last night, and arrived here fifteenn minutes past nine this morning, making her trip in *nine hours*. She made no landings.

We are indebted to Mr. Holdridge, the second officer of the R. L. Stevens, for the New York Sun of *this morning*, from which we copy several items of news.—[Alb. Evening Jour.]

INCIDENT.—We are informed that yesterday when the train of cars on the Germantown Railroad was in full motion, an object was descried on the road, and the velocity of the car was checked. On approaching nearer a child was found lying in the road asleep. Its little arm and head were resting on the railroad, and it was some time before the unconscious innocent was awakened.—The youngster had probably got tired of play, and selected this perilous pillow to enjoy a comfortable nap.—We may remark, by the way, that the managers of the different branches of this road deserve great credit for their care and vigilance. At starting and stopping the engine, large crowds collect around the cars, and nothing but the constant and commendable attention of the managers would prevent the frequent occurrence of deplorable accidents.—[Phila. Gaz.]

A layman in Providence, who occasionally exhorted at evening meetings, thus expressed his belief in the existence of a Deity:

"Brethren—I am just as confident that there is a Supreme Being as I am that there is flour in Alexandria; and that I know for a certainty, as I yesterday received from there a lot of 300 bbls. fresh superfine, which I will sell as low as any man for cash."

This reminds us of a passage in a sermon we once heard in Alabama—"You are all gone astray," said the preacher, "you are all sinners, and have gone astray—just as my horse did when I was up in Kentucky lately, and I ha'nt found him yet, and you must supply me with another

in his place, for I can't afford to preach for nothing and lose my horse too."—[Philad. Com. Herald.]

THE MECHANIC.—Under this name, a new penny paper has made its appearance. It is edited by THOMAS N. CARR, and is to be mainly devoted "to advocate the interests, and defend the rights, of the mechanics as a body." We doubt the expediency of all plans having a tendency to separate one class of our multifarious and busy population from another, by appeals addressed exclusively, or peculiarly, to them. We are in the eye, and in the practice, of the law, all equal—have all, common rights, and may alike aim at every public station. The best mode, therefore, of defending the rights, and advocating the interests, as well of mechanics, as of men of all other callings, is, to inculcate generally, obedience to the law, mutual forbearance, strict morality, and the constant practical application of that golden rule of Christianity, "do as you would be done by."

The first number of this little paper is lying before us, and subject to the exception above stated, seems to us to be well got up. Its editorial matter is good both in style and thought.

EPISCOPATE OF MICHIGAN.—Many of our readers are aware that the Rev. Henry J. Whitehouse, D. D., rector of St. Luke's Church, Rochester, has been elected to the episcopate of Michigan at the recent Convention of the Episcopal Church, held at Tecumseh. We are sorry to learn that Dr. W. has declined the election, as well as the rectorship of St. Paul's Churh of this city, which had been tendered to him. There not being sufficient time to call a special convention of the Diocese to make another election before the meeting of the general convention, the probability is, that this diocese will continue to remain for the present under the episcopal charge of the bishop of Ohio.

For the information of those who may feel interested, we will state that the vestry of St. Paul's Church in this city, having anticipated the decision of Dr. Whitehouse, have taken steps to procure a rector without delay; and the two wardens, who are now absent to the convention in Philadelphia, are clothed with power to make such an engagement, as to them may seem proper.—[Detroit Journal, 11th Aug.]

To the Editor of the N. Y. American:

As there was some mistake in your paper in relation to the commencement at Union College, will you have the goodness to insert the annexed paragraph in your next No., and oblige many of the friends of old Union.

At the Commencement at Union College on the 2d ult., 88 members of the graduating class received the degree of A. B.; and the honorary degree of A. B. was conferred on Wm. Belden, sen. of Brooklyn.

The honorary degree of A. M. was conferred on Amos W. Brown, Adam Crounce, Lyman Cobb, and Dr. Caleb Ticknor, of New York. The same degree was also conferred on 20 alumni of the college. Rev. John Breckenridge, received the degree of D. D., and R. B. Taney, and Abram Van Vechten, of Albany, that of L. L. D.

A CHURCH IN THE "FAR WEST."—As the eye of philanthropy gazes in astonishment upon the magically changing aspect of our wide and beautiful valley, and is delighted at the rapid advances of the car of civilization, which glides over its features—converting the wilderness into a garden,—like sun-shine chasing shadows along the bosom of the great deep—it is possible that a cloud of *doubt* may at times o'ercast the scenery—whether this valley will really *become happier* from the change which we are so wont to admire; and a tear of pity may fill the eye as she beholds the simple Aborigines driven far from the loved objects of their early and fond remembrance. She knows that the *garden's* produce is often inferior to that of the *desert*; that the first awkward efforts of art, will be but to mutilate those of nature, and well may her sighs mingle with those of the "spirit of the deep forest," as she looks on the ruthless inroads of the firebrand and the axe.

There are, however, some portions of the path traced by the wheels of civilization, which may be viewed with a pleasure unclouded by doubts, or tears, or sighs,—those portions we mean, where *religion* was an occupant of the car. 'Tis true the Indian may thence retire, but he is followed by the Gospel of peace. The triumph *there* over nature, is not of art, but of grace. The simplicity of the savage *there*, is not the dupe of the white man's cunning, but the happy conquest of the high, the unsearchable "wisdom of GOD." The "mountains and the hills break forth into sighing" *there*; the "trees of the field all clap their hands" in triumphant echo to each stroke of the thundering axe, and the wood-spirit rejoices as she beholds her proud oaks totter, for she knows they are to become pillars in the temple of JEHOVAH!

We were led into the train of thought that suggested the above, when about to write a notice that the Episcopal church edifice, now on the eve of completion in our village, would, on Sunday the second of August, be opened (the first time) for the celebration of Divine service.

Among the many pleasing objects that strike the eye of a visiter to this neighborhood, the building we have mensioned is by far the most attractive, and the one on which his gaze may rest with the most unmingled satisfaction. Passing over the higher reasons for the pleasure of the beholder, we would observe of our church, that in the simple, yet elegant grace of its external proportions, the commodious and tasteful arrangement of every thing within, and the picturesque and conspicuously situated ground of its location, it stands confessedly without a rival in the Territory of Michigan,—a noble, and we trust, not useless monument of the enterprise and zeal of Western Episcopalians, and of the beneficence of many residing at the East.—[Tecumseh Democrat.]

POST OFFICE DEPARTMENT,
August 11th, 1835.

Abstract from the Journal for the week ending this day.

1. POST OFFICES ESTABLISHED.

Scraper, Jackson co., Ala.
Franklin, Jasper co., Mi.
West Alton, Stafford co., N. H.
Canada Line, Somerset co., Maine.
North Garden, Albemarle co., Va.

2. POST OFFICES DISCONTINUED.

Chittenden, Calloway co., Ky.
Allston's, Saint Mary's co., Md.

3. CHANGE OF NAME.

The name of the office at Taledego, Noxubee co., Mi., changed to Macon.

4. APPOINTMENTS OF POSTMASTERS.

Pascal St. Clear, Scraper, Jackson co., Ala.
William Ellis, Franklin, Jasper co., Mi.
Jefferson Clement, Macon, Noxubee co., Mi.
Abner Vaughan, Mount Vernon Furnace, Montgomery co., Ten.
Horace Look, Collinsville, Madison co., Ill.
William T. Yeomans, Helena, Phillips co., Ar. Ter.
Israel F. Hall, House's Spring, Jefferson co., Mo.
Wardlow Howard, Middleburgh, Hardeman co., Ten.
Benjamin G. Estill, Cane Hill, Washington co., Ar. Ter.
Harvey L. Williams, Fruits, Calloway co., Mo.
Charles Douglass, King William C. H., King William co., Va.
Gordon H. Wallace, Missouriton, Saint Charles co., Mo.
Austin A. Gibbons, Sulphur Rock, Independence co., Ar. Ter.
Willis Dougherty, Martinsville, Clark co., Ill.
Abner C. Beckham, Crocketts, Gibson county, Ten.
John Sawyer, West Alton, Strafford co., N. H.
Rufus Hilton, Canada Line, Somerset co., Me.
Thomson Armor, Monroe, Butler co., Ohio.
John Cummings, Canton, Bradford co., Pa.
William Atkisson, Franklin, Baltimore co., Md.
George Bowlby, Harrison, Hamilton co., Ohio.
Joseph M. Sterling Bryant's, Fayette co., Pa.
John Ferrall, Falls of Schuylkill, Philadelphia co., Pa.
Daniel Coleman, Jacksonopolis, Jackson co., Mich. Ter.
Jacob Morris, Lishaskill, Albany co., N. Y.
David S. Brown, Cheviot, Hamilton co., Ohio.
John Burtnett, Landisburg, Perry co., Pa.
John R. De Noyelles, Punchill, Schoharie co., N. Y.
Peter L. Duboise, Olive, Ulster co. N. Y.
Matthew Fowler, Baring, Washington co., Me.
John W. Stewart, Allen, Allegany co., N. Y.
Joshua Maynard, Scipio, Seneca co., Ohio.
Legrand Mead, Edenville, Orange co., N. Y.
Zadok W. McKnew, Bladensburgh, Prince George's co., Md.
John Young, Columbia, Columbia co., Ohio.
James Kinsolvin, North Garden, Albemarle co., Va.
Joel Forester, Watson's Grove, Green co., Ga.
Flemming Moseley, Scuffletown, Laurens District, S. C.
Thomas B. Wright, Mount Airy, Surrsy co., N. C.
William A. Austin, Bellefonte, Jackson co. Ala.
William F. Thomas, Brindleton Burke co., N. C.
James Beverly, Churchville, Montgomery co., N. C.
Jared Irwin, Lumpkin, Stewart co., Ga.
Anthony D. Clark, Woodlands, Marshall co., Va.
John Weaver, Caldwell, Greenville District, S. C.
John B. Black, Milton, Laurens District S. C.
Elias H. Kemp, Foultown, Decatur co., Ga.
Simeon Lindsley, New Vernon, Morris, co., N. Jersey.
Orrin Hall, Navarino, Onondaga co., N. Y.

Ordered, that a fine of One Hundred Dollars be imposed on James Reeside, contractor on the route from New York to Philadelphia, for failure of the mail on the 3d inst.

By the schr. Jane, Capt. Davis, we have Bermuda papers to Aug. 8, inclusive. The Bermudian of 8th, says, "The conduct of the colored people in the past year, has been highly satisfactory; and we trust that they will take care of the kind persons by whom their future actions will be governed."

A bill was passed in the House of Assembly to encourage the introduction of Grist Mills in these Islands, granting the exclusive privilege to James Taylor, for a certain time.

Capt. Hatheway, of ship Saratoga, from New Orleans, left at S. W. Pass, the United States cutter Ingham, Capt. Jones, on the eve of sailing for the Coast of Mexico, in pursuit of the notorious Thompson, commander of the Mexican schooner Corea,—proof having been adduced that said Thompson is impressing and exacting from each American $300 for their release. The late Lieut. Com'dt of the Mexican schr. Montezuma, who ran his vessel on shore at the Brassos after firing into the Ingham, has been sent to Vera Cruz, for trial.—[Daily Adv.]

FROM NEW SOUTH WALES.—We have been favored with the Sidney papers to the 7th of March. Great joy was occasioned, about the last of February, by the arrival of a *cargo of women* from England. The value of this article in the Sidney Market, may be inferred from the fact that with a population of over 24,000 males in the Colony, there were only 10,000 females.—[Journal of Com.]

BANGOR.—There are ten blocks of brick buildings that will average six tenements to a block, and forty-six dwelling houses, now going up and finishing in this city; besides these, are cellars and foundations preparing for the erection of twelve more. This is exclusive of nearly as many substantial brick stores, now in progress in the business part of the city. The streets are undergoing a thorough reform, and all about us evinces a condition of general thrift and prosperity. As an exhibition of foreign and coasting business connected with Bangor, there were yesterday in the river, to be counted from the wharves, five brigs, forty schooners, and four sloops.—[Bangor Whig.]

WASHINGTON COLLEGE.—We have had the pleasure of attending the public Examination of Washington College, Hartford, which was continued for nearly a week, and have been gratified with the result. The President and Professors are laboring with zeal and ability to promote the welfare of the pupils and the prosperity of the institution.—[Churchman.]

Eighty thousand dollars have already been subscribed for the building of the Portland Exchange, Maine.

Gleanings from European papers.

[From the London Athenæum of June 20.]

REFORM.—The Queen of England has set an example which has been followed by many of the nobility and gentry; she has availed herself of the hot weather to set the example of early hours, and, we believe, that a four o'clock dinner and a drive afterwards, is about to be fashionable: 8 and 9 o'clock in the evening has been the fashionable hour several years.

DELAY OF PUBLIC BUSINESS IN THE HOUSE OF LORDS.—Lord Brougham, adverting to the legislative business of their Lordships standing at Zero, while the demand for improvement in the country was almost at the boiling point, recommended their Lordships to proceed with the discussion on the Irish Church question by means of resolutions, to which course both Lord Melbourne and the Duke of Wellington objected, one on the ground that it would add to their Lordships' labor without forwarding the public business; and the other on the ground that their Lordships, because all the information was not before them, were not ripe for the discussion. The arrears of the Court of Chancery, or of their Lordships' judicial business, is nothing to the arrears of their legislative business, which continually accumulates; and, however disagreeable it may be, their Lordships must speedily put their shoulders to the wheel, or their overburthened vehicle must forever stick in the mud.

OPENING A MUMMY.—Much curiosity has been excited in the scientific world by the opening of a mummy, brought by Lord Frederick Fitzclarence from Thebes. The ceremony took place at the new Anatomical Theatre at St. George's Hospital, in Kennerton street, Wilton place. The lecturers of the school having offered the premises for the occasion, the mummy was opened on Wednesday by Mr. Pettigrew, who delivered some interesting observations on the process of embalming adopted by the Egyptians. Prince George of Cambridge, Lord F. Fitzclarence, Lord Wilton, Count d'Orsay, Sir A. Cooper, Sir B. Brodie, Mr. Davidson the Egyptian traveller, &c., were present during the operation. The lady, for it was a lady, was discovered to have been a priestess of the Temple of Ammon, at Thebes. After a period of more than 2,000 years, she will repose in a glass case in the museum of an anatomical school.

GOLD.—The average of gold brought into England for the last few years was 1,630,000*l.* per annum. The far greater portion of this was used in manufactures and articles of jewellery. A considerable quantity was made into gold leaves, the intrinsic value of each of which was about one halfing altogether a charge of three farthings for each leaf. On the average nearly two millions of these leaves were manufactured every week in London. Not more than one half of this was returned in another shape to the goldsmith; scarcely any portion, however, of the gold used in gilding frames was lost, as the Jews carefully looked after the old frames, and burnt the gold off. The ordinary wear and tear of the gold coins probably amounted annually to about one fiftieth part of their value.—[Professor Faraday.]

THE WIDOW OF NAPLES.—There dwelt in Naples a matron named Corsina, wife of a worthy cavalier, known as Raomondo del Balzo. Now it pleased heaven to take the husband of Corsina, leaving her an only child, named Carlo, who was in every way the counterpart of his father. Thus the mother resolved that he should inherit all her fortune, and determined to send him to study at Bologna, in order that he might learn all the accomplishments of his age. With this veiw she secured a master for her son, furnished him with books and every other necessary, and, in the name of heaven, sent him to Bologna. There the youth made rapid progress, and in brief time became a ripe scholar; and all the students admired him for his genius and loved him for the excellence of his life. In course of time the boy became a young man, and, having finished his studies, prepared himself to return home to Naples, when he suddenly fell into a sickness, which defeated the skill of all the physicians of Bologna. When Carlo found that death was inevitable, he thus ruminated with himself:—"I am not afflicted for my own sake, but for my disconsolate mother, who has no child save me, in whom she has garnered all her earthly hopes, and from whom she looks for future support, and for the regeneration of our house. And when she knows that I am dead, and that, too, without her even seeing me, sure I am she herself will suffer a thousand deaths." Thus did he lament more for his mother than himself. Now, dwelling on these thoughts, he conceived a plan by which he hoped to lessen the bitterness of his death to his parent; to which end he wrote her a letter in the following words:—

"My dearest Mother,—I entreat that you will be pleased to send me a shirt made by the hands of the most cheerful woman in Naples—a woman who shall be free from every sorrow—every care."

This letter was despatched to his mother, who instantly disposed herself to fulfil the desires of her son. She searched throughout Naples, and where from outward appearance, she hoped to meet the woman free from sorrow, there she learnt a story of some lurking grief—some deep, though well-disguised affliction. At this, Corsina said, "I see there is no one free from misery—there is no one who hath not her tribulation: and they, too, who seem the happiest have the deepest cause of wretchedness." With this conviction she answered the letter of her son, excusing herself for the non-fulfilment of her commission, assuring him that, with all her search, she could not discover the person whom he desired might make the garment. In a few days she received the tidings of her son's death: it was then she felt the full wisdom of the lesson he had taught her, and with meekness and resignation bowed to the will of God. [The above is from the Italian of Fiorentino: the original story is disfigured by the faults of the age (1397) in which the author wrote. We have endeavored to present to our readers the exquisite sentiment of the tale, separated from the dross. Fiorentino is, we believe, but little known to English readers: he is, however, well worthy of their acquaintance.] —*Freemason's Quarterly Review for July.*

[*From the London Literary Gazette*].

The History of the Assassins.

Translated from VON HAMMER, by C. O. WOOD, M. D.

After a general view of the state of the empires of the East, and the reigning families of the Ommiades, Abbassides, Fatimites, &c., Mr. Von Hammer proceeds to his more immediate matter, and says:

"The Assassins are but a branch of the Ismailites; and these latter, not the Arabs generally, as descendants of Ishmael, the son of Hagar, but a sect existing in the bosom of Islamism, and so called from the Imam Ismail, the son of Jafer."

He then treats of the foundation and progress of Islamism and its various sects; particularly of the *Imamie* (*i. e.* the tenits of the twelve Imams,) from which the Ismailite was a division. In the last (the ninth) degree of their initiation the disciples of this vile school were

"Perfectly enlightened as to the superfluity of all prophets and apostles, the non-existence of heaven and hell, the indifference of all actions, for which there is neither reward nor punishment either in this world or the next; and thus was he matured for the ninth and last degree, to become the blind instrument of all the passions of unbridled thirst of power. To believe nothing and to dare all, was, in two words, the sum of this system, which annihilated every principle of religion and morality, and had no other object than to execute ambitious designs with suitable ministers, who, daring all and honoring nothing, since they consider every thing a cheat and nothing forbidden, are the best tools of an infernal policy. A system, which, with no other aim than the insatiable lust of dominion, instead of seeking the highest of human objects, precipitated itself into the abyss, and mangling itself, is buried amidst the ruins of thrones and altars, the horrors of anarchy, the wreck of national happiness, and the universal execration of mankind."

The order of the Assassins was founded by Hassan Sabah, whose personal story, from youth upwards, till he established himself in power as the head of the mighty conspiracy, is one of wonder.

"Nothing is true and all is allowed," was the groundwork of the secret doctrine; which, however, being imparted but to few, and concealed under the veil of the most austere religionism and piety, restrained the mind under the yoke of blind obedience, by the already adopted rein of the positive commands of Islamism, the more strictly, the more temporal submission and devotion were sanctioned, by eternal rewards and glory. Hitherto, the Ismailites had only masters and fellows; namely, the Dais or emissaries, who, being initiated into all the grades of the secret doctrine, enlisted proselytes; and the Refik, who, gradually intrusted with its principles, formed the great majority. It was manifest to the practical and enterprising spirit of Hassan, that, in order to execute great undertakings with security and energy, a third class would also be requisite, who never being admitted to the mystery of atheism and immorality, which snap the bonds of all subordination, were but blind and fanatical tools in the hands of their superiors; that a well organized political body needs not merely heads but also arms, and that the master required not only intelligent and skilful fellows, but also faithful and active agents: these agents were called Fedavie (i.e. the self-offering or devoted); the name itself declares their destination. How they afterwards, in Syria, obtained that of the Hashishin or Assassins, we shall explain hereafter, when we speak of the means employed to animate them to blind obedience and fanatical self-devotion. Being clothed in white, like the followers of Mokanna, three hundred years before, in Transoxana, and, still earlier, the Christian Neophytes, and, in our own days, the pages of the sultan, they were termed Moboyese, the white, or likewise, Mohammere, the red, because they wore, with their white costume, red turbans, boots, or girdles, as in our own day do the warriors of the prince of Lebanon, and at Constantinople the Janissaries and Bostangis as body-guard of the seraglio. Habited in the hues of innocence and blood, and of pure devotion and murder, armed with daggers (cultelliferi), which were constantly snatched forth at the service of the grand-master, they formed his guard, the executioners of his deadly orders, the sanguinary tools of the ambition and revenge of this order of Assassins. * * *

"The flat part of a country is always commanded by the more mountainous, and the latter by the fortresses scattered through it. To become masters of these by stratagem or force, and to awe princes either by fraud or fear, and to arm the murderer's hand against the enemies of the order, was the political maxim the Assassins. Their internal safety was secured by the strict observance of religious ordinances; their external, by fortresses and the poinard. From the proper subjects of the order, or the profane, was only expected the fulfilment of the duties of Islamism, even of the most austere, such as refraining from wine and music: from the devoted satellites was demanded blind subjection and the faithful use of their daggers.—The emissaries, or initiated, worked with their heads, and led the arms in execution of the orders of the Sheikh, who, in the centre of his sovereignty, tranquilly directed, like an animating soul, their hearts and poinards to the accomplishment of his ambitious projects."

The various gradations of rank and power under him are detailed, and the whole extraordinary organization explained. Hassan's "greatest policy (as is well stated) consisted in designing his doctrine of infidelity and immorality, not for the ruled, but only for the rulers; in subjecting the tensely reined and blind obedience of the former, to the equally blind but unbridled despotic commands of the second; and thus he made both serve the aim of his ambition,—the former by remuneration, the latter by the full gratification of their passions. Study and the sciences were, therefore, the lot of only a few who were initiated. For the immediate attainment of their objects, the order was less in need of heads than arms; and did not employ pens, but daggers, whose points were everywhere, while their hilts were in the hand of the grand-master."

At length:—

"So great was the dread in which princes held the order, that they did not dare to refuse them the strong places of their own countries, and preferred destroying them, to abandoning them for citadels of the power and sovereignty of the Assassins. * * *

"Hassan Sabah survives the most greaful of his deciples, and his nearest relations, to whom the ties of attachment and consanguinity seemed to secure the highest rights to the succession to the sovereignty. His nephew and grand-prior in Syria, Abulfettah, had fallen by the sword of the enemy; Hossin Kaini, grand-prior in Kuhistan, under the dagger of a murderer, probably Ostad, one of the two sons of Hassan; and Ostad and his brother under the hand of their own father, who seemed

to revel even in spilling his own blood. Without proof of the measure of guilt, he sacrificed them, not to offended justice, but apparently to mere love of murder, and that terrific policy, by virtue of which the order snapped all ties of relationship or friendship, to bind the more closely those of impiety and slaughter. Ostad (*i. e.* the master), probably so called because the public voice had destined him as the successor of his father as grand-master, was put to death on the mere suspicion of being concerned in Hossein's murder; and his brother, because he had drunk wine; the former, probably, because he had by his crime, which was without orders, interfered with his father's prerogatives; the latter, because he had infringed one of the least essential laws of Islamism, but whose observance was part of the system of the order. In the execution of his two sons, the grand-master gave the profane and the initiated a sanguinary example of avenged disobedience to the ordinance of outward worship, and the rules of internal discipline; but, probably, besides this apparent motive, the son of Sabah was urged by another, to the destruction of his race; possibly, his sons, disgusted with the long reign of their father, were expecting with impatience to succeed him; it is probable, that on that account he deemed them incompetent, as not having learned to obey, or as being wanting in the necessary princely qualities; or, it is probable, that he set them aside, in order to avoid sinking the order into a dynasty by inheritance, and that the succession of grand-masters might be determined by the nearest relationship of mind and character, irreligion and impiety. Human nature is not usually so diabolical, that the historian must, among several doubtful motives to an action, always decide for the worst; but, in the founder of this society of vice, the establisher of the murderous order of the Assassins, the most horrible is the most likely."

The founder lived to the age of ninety, and was succeeded, during fourteen years, by a yet more bloody tyrant, Kiabusurgomid; of whose ferocity, and the devoted fanaticism of his followers the following quotation is a terrible evidence:—

"The less the designs of the Ismailites prospered by the sword, the more successful and persevering were they with the dagger; and, however dangerous to the order the times might be, they were not the less so to its most powerful adversaries. A long series of great and celebrated men, who, during the grand mastership of Kiabusurgomid, fell by the poinards of his Fedavi, signalized the bloody annals of his reign; and, as formerly, according to the fashion of oriental historians, there follows, at the end of each Prince's reign, a catalogue of great statesmen, generals, and literati, who have either adorned it by their lives, or troubled it with their death; so, in the annals of the Assassins, is found the chronological enumeration of celebrated men of the nations who have fallen the victims of the Ismailites, to the joy of their murderers, and the sorrow of the world. The first, under the grand mastership of Kiabusurgomid, was Cassim-ed-dewlet Aksonkor Bourshi, the brave prince of Mossul, feared alike by the Crusaders and the Assassins, as one of their deadilest enemies. Having fought his last battle with the former, near Maarra Mesrin, he was, on the first Sunday after his return, attacked by eight Assassins, disguised as dervishes, as he was in the act of seating himself on the throne in the Mosque at Mossul: protected by a coat of mail and his natural bravery, he defended himself against the wretches, three of whom he stretched at his feet; but before his retinue could hasten to his assistance, he received a mortal wound, from the effects of which he expired the same day. The remaining Assassins were sacrificed to the vengeance of the populace, with the exception of one young man from the village of Katarnash, in the mountains near Eras, whose mother, on hearing of Aksonkor's murder, dressed and adorned herself for joy at the successful issue of the attempt, in which her son had devoted his life; but, on his returning alone, she cut off her hair, and blackened her face, with the deepest sorrow, that he had not shared the murderer's honorable death. To such lengths did the Assassins carry their point of honor, and what may be termed their Spartanism. Moineddin, the vizier, of Sultan Sandjar, was also murdered by an Assassin, hired by his enemy, Derkesino, the vizier of Mohammed, and a friend of the Ismailites. In order the better to attain his object, the ruffian entered his service as a groom. One day, as the vizier went into the stable to inspect his horses, the false groom appeared before him without clothes, in order to avoid all suspicion of carrying concealed weapons, although he had hidden his dagger in the mane of the horse, whose bridle he was holding.—The horse reared, and under pretence of quieting him with caresses, he snatched his poinard, and stabbed the vizier. If Bourshi, Prince of Mossul, stood on the list of the victims of the Ismailites solely because he was the rival of their power, and an obstacle to their greatness, we shall not be surprised at finding the name of Busi, the Prince of Damascus, by whose orders the vizier Masdeghani, and six thousand Assassins had been massacred. The slightest pretence was sufficient to cause the blood of princes to flow beneath their stilettos; how much more when their own called, as in this latter case, for revenge. To escape, was beyond the power of prudence, as they watched for years, for time, place and opportunity. Busi, the son of Togteghin, was, in the second year after the massacre, attacked by its avengers, and received two wounds, one of which healed immediately; the other was, however, mortal the following year."

Kiabusurgomid, by a great error, made the dignity hereditary in his son Mohammed, who, in turn, was succeeded by his son, Hassan II.; and he, after creating a wide and dangerous schism, by claiming to be himself Imam, and not, as heretofore, the Imam's precursor, was slain by his son, Mohammed II., who rose to be grand-master on the murder of his father. The next was Hassan III.; the next Alaeddin Mohammed III.; and the last Rockneddin, who, together with his infamous instruments, was destroyed by the Mongol conquerors of the countries, where they held sway during a hundred and seventy years.* Of their character, during this period, we select a few instances:—

"Two years after the death of Conrad Marquess of Montferrat and Tyre, and that Rashideddin Sinan, Henry Count of Champagne, passed, on his journey to Armenia, near the territory of the Assassins; the grand-prior, the successor of Rashideddin Sinan, sent deputies to welcome him, and to invite him to visit his fortress on his return. The Count accepted the invitation, and came; the grand-prior hastened to meet him, and received him with great honors. He took him to several castles and fortresses, and brought him at last to one having very lofty turrets. On each look-out stood two guards dressed in white, consequently initiated in the secret doctrines. The grand-prior told the count that these men obeyed him better than the Christians did their princes; and giving a signal, two of them instantly threw themselves from the top of the tower, and were dashed to pieces at its foot. 'If you desire it,' said the grand-prior to the astonished count, 'all my whites shall throw themselves down from the battlements in the same way.' The latter declined, and confessed that he could not calculate upon such obedience in his servants. After staying some time at the castle, he was, at his departure, loaded with presents; and the grand-prior told him, on taking leave, that by means of these faithful servants he removed the enemies of the order. By this horrible example of blind submission, the prior showed that he trod exactly in the footsteps of the founder of the order, who had given the ambassador of Melekshah a similar proof of the devotion of his faithful followers. Jelaleddin Melekshah, sultan of the Seljuks, having sent an ambassador to him to require his obiedence and fealty, the son of Sabah called into his presence several of his initiated.—Beckoning to one of them, he said, 'Kill thyself!' and he instantly stabbed himself; to another, 'Throw thyself down from the rampart!' the next instant he lay a mutilated corpse in the moat. On this, the grand master turning to the envoy, who was unnerved with terror, said, 'In this way am I obeyed by seventy thousand faithful subjects. Be that my answer to thy master. * * *

"A youth, who was deemed worthy, by his strength and resolution, to be initiated into the Assassin services, was invited to the table and conversation of the grand master, or grand prior; he was then intoxicated with henbane (*hashishe,*) and carried into the garden, which on awaking, he believed to be Paradise; every thing around him, the houris in particular, contributed to confirm his delusion. After he had experienced as much of the pleasures of Paradise, which the prophet has promised to the blessed, as his strength would admit; after quaffiing enervating delight from the eyes of the houris, and intoxicating wine from the glittering goblets, he sunk into the lethargy produced by debility and the opiate; on awakening from which after a few hours, he again found himself by the side of his superior. The latter endeavored to convince him, that corporeally he had not left his side, but that spiritually he had been wrapped [rapt] into Paradise, had then enjoyed a foretaste of the bliss which awaits the faithful, who devote their lives to the service of the faith, and the obedience of their chiefs. Thus did these infatuated youth blindly dedicate themselves as the tools of murder, and eagerly sought an opportunity to sacrifice their terrestrial, in order to become the partakers of eternal life. What Mohammed had promised in the Koran to the Moslimin, but which to many might appear a fine dream and empty promises, they had enjoyed in reality; and the joys of heaven animated them to deeds worthy of hell This imposture could not remain undiscovered; and the fourth grand master, after unveiling all the mysteries of impiety to the people, probably revealed also to them the joys of Paradise, which could, besides, have but little charms for them, to whom already every thing was permitted on earth. That which hitherto had served as a means to produce pleasure, became now itself an object; and the effects of the intoxication of opium, were the earnests of celestial delight, which they wanted strength to enjoy."

With this we finish; and have only to add, that the general affairs of the East, during several centuries, are greatly illuminated by this account of one of its monstrous afflictions, and heartily recommend the volume to our readers, not only as a valuable companion to the real history of the Khalifates, the Crusades, &c. &c., but a curious associate

* "The conquering power of Jengis Khan, thundering in the distance, had passed innocuously over their heads, but under the third of his successors, Mangu Khan, the whirlwind of Mongols swept over the Eastern world, and, in its desolating progress, carried away, along with the khalifat, and other dynasties, that of the Assassins. In the year 582 of the Hegira (A.D. 1186), when the seven planets were in conjunction, in the sign Libra, as they had been a century before in that of Pisces, all Asia was trembling in expectation of the end of the world, which astrologers declared was to happen, the first time by a deluge, and the second by hurricanes and earthquakes. But if the first time, a swollen mountain torrent drowned only a few pilgrims in order not to put the prophecy to the blush; and the second, there was so little wind on the appointed night, that lights burnt freely in the open open air on the top of the minarets without being extinguished; nevertheless, at both periods political revolutions came to the help of the astrologers' predictions, who had interpreted the conjunction of the planets as indicating physical changes. * * * Mangu had already, some time before, issued the command to Hulaku to exterminate all the Ismailites, and not to spare even the infant at his mother's breast; and immediately upon Rokneddin's departure, the sanguinary task was commenced, which had only been delayed till Kirdkuh, and the remainder of the castles of the Assassins in Kunistan and Syria, should have fallen. He sent one of his viziers to Kaswin, to put death, indiscriminately, Rokneddin's wives, children, brothers, sisters, and slaves; only two relations, females apparently, of Rokneddin were selected from this devoted band, not for mercy, but to be the victims of the princess Bulghan Khatun's private revenge, her father Jagatai having bled by the Assassins' daggers. A command, similar to that given to the governor of Kaswin, was issued to the viceroy of Khorassan. He assembled the captive Ismailites, and twelve thousand of these wretched creatures were slaughtered without distinction of age. Warriors went through the provinces, and executed the fatal sentence without mercy or appeal. Wherever they found a disciple of the doctrine of the Ismailites, they compelled him to kneel down, and then cut off his head. The whole race of Kiabusurgomid, in whose descendants the grand-mastership had been hereditary, were exterminated. The 'devoted to murder' were not now the victims of the order's vengeance, but that of outraged humanity. The sword was against the dagger, and the executioner destroyed the murderer. The seed sowed for two centuries was now ripe for the harvest, and the field ploughed by the Assassin's dagger was reaped by the word of the Mongol. The crime had been terrible, but no less terrible was the punishment."

to the Oriental tales with which our leisure hours have been so much delighted.

Grey the poet, used to declare, that the sum of happiness consisted in lolling upon a soft sofa all day long, reading new novels.

CIRCULAR. To ENGINEERS and Superintendants of Railroads and Canals.—I am preparing to issue a *new* edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a *full* and *precise* account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—*in short, every thing which may be of interest* to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the *first of August* next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

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NOTICE TO CONTRACTORS.

Sealed Proposals will be received at the Hudson and Berkshire Railroad Company's Office, in the city of Hudson, until the 5th day of September next, for excavating and embanking 14 miles of their Road from Arnold's shop, near Groat's, at Chatham Four Corners, to the state line, and also for constructing 8 Bridges, from 60 to 70 feet each, between the abutments. Plans of the masonry and superstructure of the bridges will be exhibited at the Railroad Office. Contractors will be required to furnish all the materials for bridges; and the masonry to be completed by the 1st of December next. The road to be graded for a double track, 24 feet wide. A part of the road will be heavy rock and gravel excavation. Profiles of this part of the route will be exhibited at the Railroad Office, in Hudson, and also at the Office of the Engineer, at Chatham Four Corners. The road will be divided into sections of one half and one mile each in length, and prepared for examination by the 10th of August.

Proposals will also be received for furnishing 500,000 feet, B. M., of White Oak Rails, 6 by 7 inches square, and 16 feet long. Also, 15,000 Oak or Chesnut Ties, 6 by 7 inches square, 8 feet long, or, if round, not less than 8 inches in diameter, at small end. Also, 500,000 feet of Chesnut, Pine, or Hemlock Sills, 4 by 10 inches, 12, 16, or 20 feet long.

The whole to be subject to the inspection of the Engineer, and to be delivered on the line of the road, by the 15th of April, 1836.

The remaining 18 miles of the route will be put under contract as soon as the line can be prepared.

Persons applying for contracts will be expected, unless personally known to the Engineer, to present with their proposals recommendations as to ability to perform their contracts.

☞ Any information on the subject afforded at the Engineer's Office, Chatham Four Corners.

JAMES MELLEN, President.
GEORGE RICH, Chief Engineer.

Hudson, Aug. 1, 1835. 31—5t

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Troy, N. Y. July, 1831.

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